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A PERIODICAL 9 SCHOOL ADMINISTRATION



JANUARY, 1927

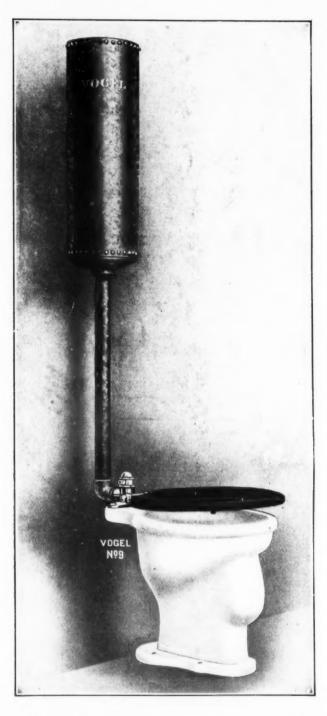
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School Board Journal A PERIODICAL OF SCHOOL ADMINISTRATION

Devoted to the Interests of School Boards, School Officials, Superintendents, and School Architects



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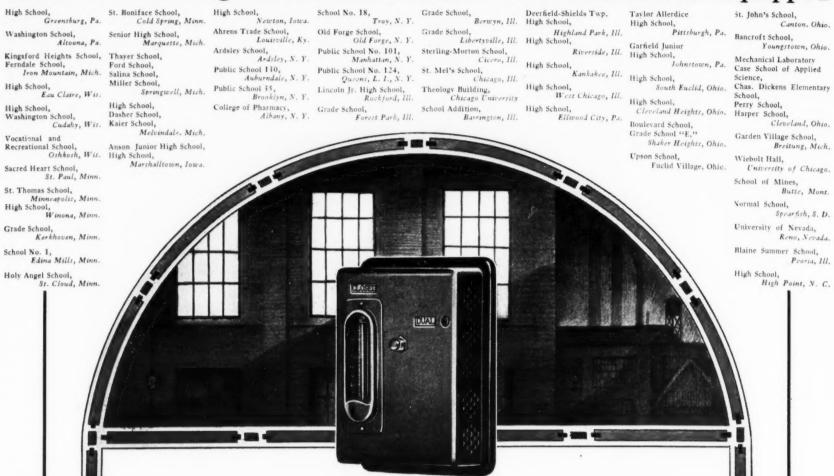
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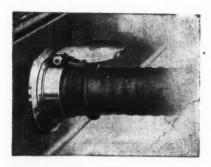
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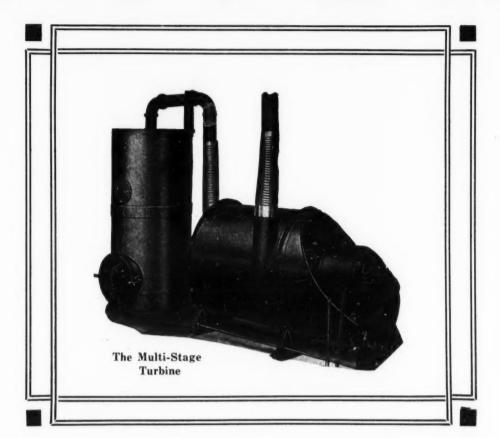
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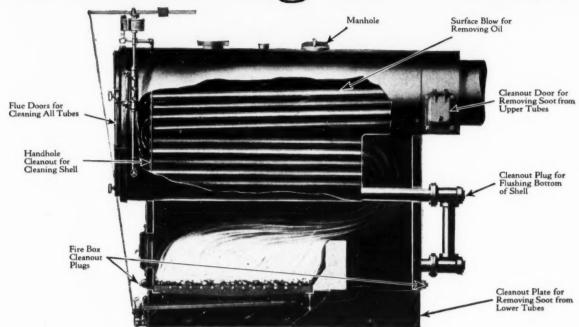
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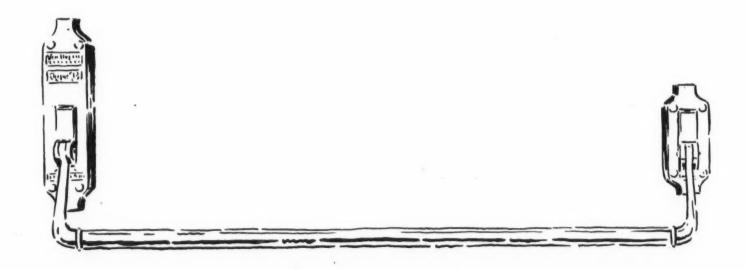
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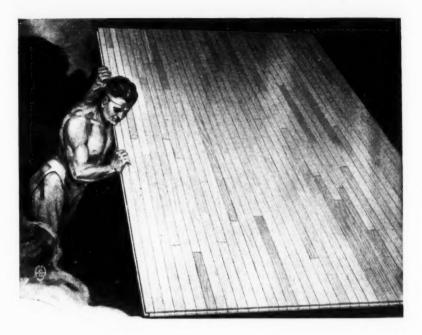


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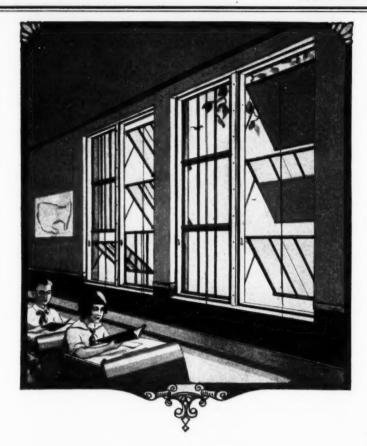
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> OAK OLIVER WENDELL HOLMES in his delight-ful poem, "The Dea-con's Masterpiece, or The Wonderful 'One-Hoss Shay'" in the

building of which only the strongest materials were used, including floors of oak, points this moral: "little of all we value here wakes on the morn of its hundredth year, with-out both feeling and looking queer. In fact, there's nothing that keeps its youth, so far

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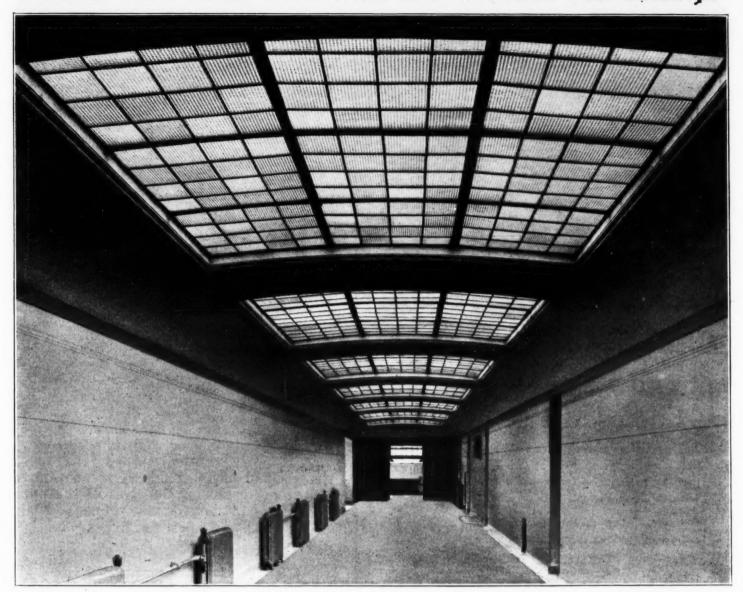
Oak floors grow more mellow and beautiful with time; a little attention to the surface is all that is needed to keep them in perfect condition. They are sanitary, because the tight continuous surface repels dirt; and healthful, because wood diminishes the strain of constant standing and walking.

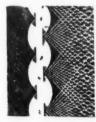
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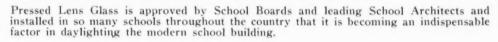
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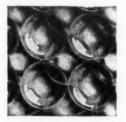
PRESSED LENS GLASS WITH WIRE AND WITHOUT FOR CEILINGS





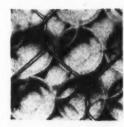
Foremost illuminating engineers endorse the superiority of Pressed Lens Glass over any and all other kinds of glass for ceiling lights. It is not a matter of opinion but established fact, because other kinds of glass cannot be cleaned and lose from ten to thirty per cent in transmitted light (see folder No. D-56—tests by Electrical Testing Laboratories of New York), while the overlapping lenses of Pressed Lens Glass pass 95 per cent of the available light, the light rays being multiplied into thousands of rays filling the room so completely that it becomes practically shadowless and without glare.







Central High School, Columbus, Ohio, William B. Ittner, Architect



ADVANTAGES: School rooms are more perfectly daylighted when Pressed Lens Glass is glazed in the upper exterior sash on the east, south and west elevations; even distribution to all parts of the room and no shades are required under average conditions. For ceilings, skylights and corridors it has no equal because the light rays are multiplied and projected into all corners, saving the students' eyes by giving them full light for their work.

SPECIFICATION: Sheet Pressed Lens Glass three-sixteenths thickness as manufactured by the MANUFACTURERS' GLASS COMPANY, 1702 First National Bank Building, Chicago, Illinois, to be glazed in all ceiling lights and skylights and other openings as shown upon plans and specifications, rabbets same as for plate glass.



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close the doors, during their day by day use, quickly and quietly, the application shown in the illustration with the Sargent special foot (No. 35) being particularly desirable.

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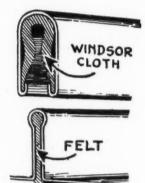
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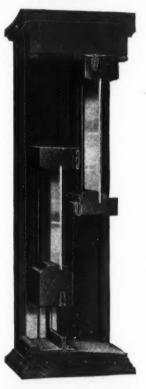
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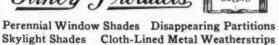
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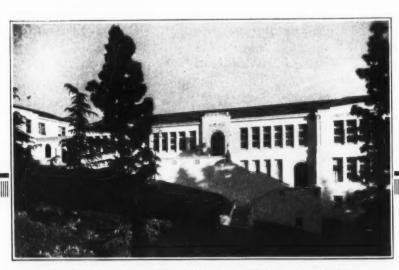
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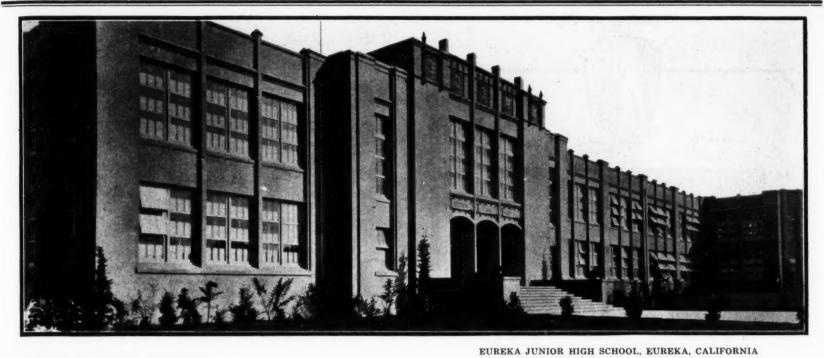
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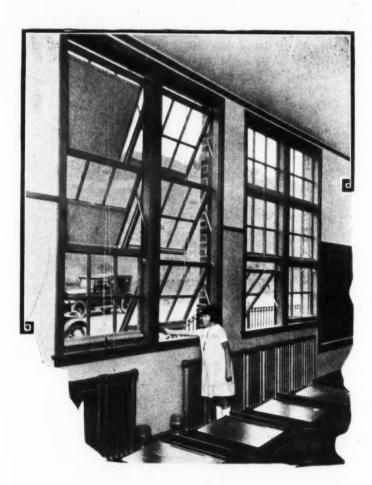
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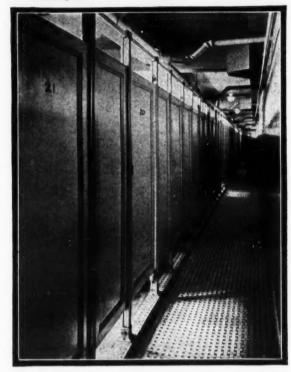
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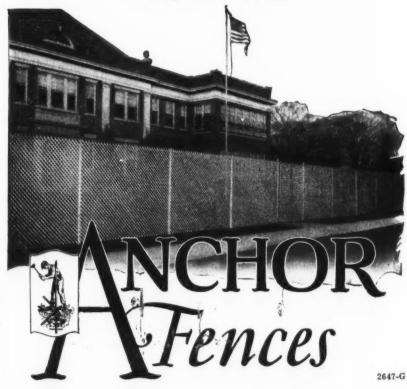
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HUNDREDS of scuffling, scampering feet are "death" on school building floors—both wood and concrete. They splinter and wear out the wood. They grind the concrete into dust that is dangerous to health. They raise your maintenance costs by necessitating repairs. Stop this waste by making your floors wearproof and dust-proof.

LIGNOPHOL

THIS great wood floor preservative penetrates the wood fibres and restores the natural gums and oils. It gives you a wood floor that is hard, smooth and sanitary. Prevents rotting, splintering and

drying out. Does away with the use of messy floor oils. One treatment will last for years.

LAPIDO LITH

THIS liquid chemical changes a concrete floor surface to a fine, dense, crystalline structure of flint-like hardness. No more wearing down of floors. No more concrete dust. Lapidolith adds years of life to even an old worn floor. As easy to apply as water. The floors can be used a few hours after application.

Other Sonneborn Products
SONOTINT—The Velvety Washable
Flat Finish.

CEMCOAT—Washable Enamel Paint.
HYDROCIDE COLORLESS Rainproofs
Buildings.

Mail Coupon for Free Samples

L. SONNEBORN SONS, Inc.

14 Fifth Avenue	New York	110
L. SONNEBORN SONS, Inc. 114 Fifth Avenue, New York Please send me, without obligation, demonstration samples and literature on:—Lapidolith; Lignophol; Sonotint; Cemcoat; Hydrocide Colorless; (Check products that interest you)		
Name		7
Address	. 1	
Company	. 1	
Position	. !	



Examine Your Used Paper Towels!

Look in your washroom waste basket. Note the large unused area in each crumpled towel—outer edges, which in the towel of ordinary size, go to waste.

Stop this waste by using Dubltowls. Smaller in size (10 x 103/4 inches). The entire towel is used —and ONE Dubltowl wipes dry. The "many towel" habit stops with the "drag" of the second towel on dry skin. Fewer towels are used, service costs decrease.

Dubltowls are remarkably strong, instantly absorbent. Made from unbleached, all-kraft stock. Lintless and soft as linen on face and hands. Dispensed in pairs from the cabinet illustrated above or your present standard size equipment.

150 Dubltowls (300 sheets) making twice the usual number of sheets to the package. 25 packages per carton.



ROLTOWLS

Roltowls provide the most economical service of the roll type. Made from genuine kraft stock same as in Dubltowls. Dispensed from Palmer Economy Fixture shown above. Fixture has spring stop device permitting detachment of but one sheet at a time. Rolls perforated so each sheet makes a $10 \times 10\%$ inch paper towel.

SINGLTOWLS

Genuine kraft towels, dispensed one sheet at a time. Meet the requirements of the school buyer who desires low cost per towel delivery, combined with adequate strength and instant absorption. Size $10 \times 103/4$ inches, 150 heavy, single sheets per package. 25 packages per carton.

Dubltowls have been adopted as standard by many of the largest school users in the country. Write or wire for prices, samples and name of nearby distributor, who is stocked to make immediate shipment.

BAY WEST PAPER CO., Green Bay, Wis.



"ONE DUBLTOWL WIPES DRY-YOU TRY IT"



This Albert Pick & Company Cafeteria in the Westbury High School, Westbury, N. Y., shows how informal and attractive a dining room can be

An Attractive Cafeteria is an Educational Necessity

GOOD food, well prepared and attractively served, is a recognized factor in education. The cafeteria has in fact become one of the major considerations in school planning.



Send for this free book-of interest to every educator. Just ask for book Y93

If you wish expert knowledge and advice on the location, size, equipment and arrangement of a Cafeteria, our Engineers will provide it willingly and without obligation. Their advice will save time, expense and worry for you. And you will have the further assurance of dealing with the country's foremost authorities!

ALBERT PICK COMPANY

208-224 W. Randolph Street, CHICAGO



3 Big Reasons for Kewaunee Superiority

Resources...Research...and Crafts-manship—three big factors that make Kewaunee Mechanical Drawing Tables incomparably better. Lasting satisfaction that school board budgets require. Better to meet classroom requirements.

Literally the accepted classroom standard, this desk challenges all comparison. For a quarter of a century of specialized knowledge has built into it the priceless ingredient.

Its popularity is attested to by thousands. Its leadership is proved...unprotested. High Schools, Colleges, Universities...wherever tested quality is paramount, there you will find this table.

"Kewaunee Means Quality in School Furniture"

Write for Catalog No. 8

Kervarmee Mfg. Co.

ART AND MECHANICAL DRAWING ROOM FURNITURE FOR SCHOOLS AND COLLEGES

Economy Plant No.2 Adrian, Mich.

A SHADE IS ONLY AS GOOD AS ITS ROLLER



You can reason with a bad pupil but not with a bad window shade

As MUCH of a teacher's energy can be used up on a bad-acting window shade as on a bad-acting pupil.

Why experiment with shades? To make sure of perfect service simply specify that all shades be of Hartshorn manufacture. Be particularly sure that every shade is mounted on a genuine Hartshorn Roller.

You may be told that other rollers are just as good as the Hartshorn. But remember this: Stewart Hartshorn in 1864 invented the window shade as it is known today. Hartshorn Rollers contain his mechanism. For 60 years it has proved its superiority.

Maps and charts are expensive — mount them on Hartshorn Rollers.

For window shades that will meet your needs exactly, specify Hartshorn's Oswego Tinted Cambric Shade Cloth mounted on Hartshorn Rollers with No. 86 or No. 87 double brackets.

WRITE FOR NAME of dealer through whom you may secure Hartshorn Shade Products and for samples of colors: Sage, Linen, Putty, Dust, Dill, in Tinted Cambric especially adapted for school use.

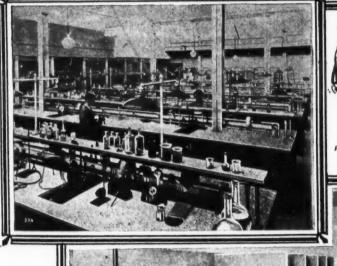
Hartshorm
SHADE
PRODUCTS
Established 1860

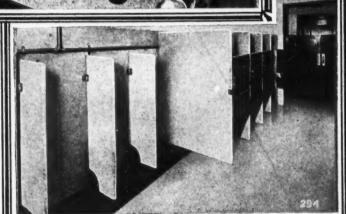
STEWART HARTSHORN CO., 250 FIFTH AVE., NEW YORK CITY

Equip for Permanence with Albertene Stone



Illustrations show typical educational installa-tions of Alberene Stone for Stair Treads, Shower Compartments, Laboratory Equipment, Toilets and Urinals.





NATURAL quarried stone ages in the making, Alberene Stone has the timeproof permanence of the hills from which it comes. It owes its leadership to its ability to resist the agencies which attack and destroy all other materials used for similar purposes.

Alberene Stone is light gray in color, hard and smooth and strong. It has no cleavage lines and will not fracture, chip, split or spall. It is non-absorbent and non-staining - heat-andcold-proof - highly resistant to acids and alkalis. It is easily machined in any form and assembled in any construction with liquidtight, germ-proof joints.

Alberene Stone has become a standard material for many important school purposes. It is a material upon which maintenance costs are minimized. Write for the Catalog, giving complete data, construction details, illustrations,



153 WEST 23d St. Boston, Chicago, Philadelphia

NEW YORK CITY.



· Newark, N.J., Pittsburgh. ·



Economical—Everlasting



ENDURAROC is everlasting—growing harder and possessing greater tensile strength with age. The process of manufacture is regulated by formula so that each and every slab is identical and does not vary in quality. ENDURAROC is just as permanent as concrete brick slate or other similar building. crete, brick, slate or other similar building

ENDURAROC is made of asbestos fibre, Portland cement and coloring matter united under hydraulic pressure of 3,000 pounds to the square inch into dense homogeneous slate colored sheets ½ inch in thickness. The panels then are put through our special surfacing process, to be had only with Rowles' products. The finished product, in its various treatments, is subjected to more wear than it will ever receive in a lifetime of school service.

ENDURAROC is the ideal blackboard for any type of school building regardless of size, cost or location. It is fire and waterproof, will not warp, bulge, expand or contract. It is uniform in thickness, light in weight, is available in long lengths, easy to handle, and cannot be broken by jars or vibrations. ENDURAROC weighs less than one-half as much as slate but is harder and possesses greater tensile strength.

ENDURAROC is from every viewpoint the most economical blackboard—not only in first cost but in installation expense, transportation charges and upkeep.

Write your nearest distributor or direct to factory for samples and further informa-

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H. S. Crocker Company, Inc., 565 Market Street, San Francisco, Calif.

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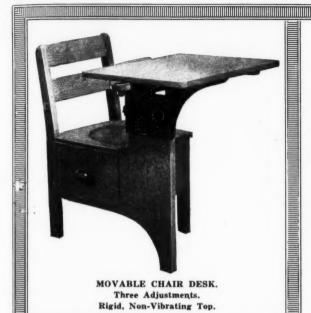
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Wm. S. Seng, 304 Builders Exchange, San Antonio, Tex. O. B. Marston Supply Co., 337 W. Washington St., Phoenix, Arizona.

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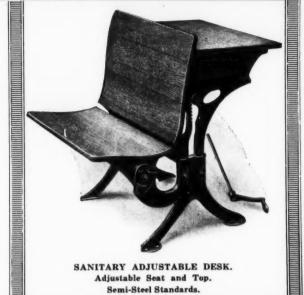
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E.W.A.ROWLES CO. M'F'RS-SCHOOL FURNITURE & SUPPLIES 2345-51 SO. LA SALLE ST. . . CHICAGO, ILL.





Noiseless Folding Seat. Semi-Steel Standards.





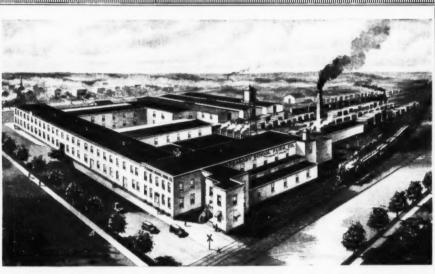
School

Office

and

Classroom

Furniture





THE HOME OF PEABODY PRODUCTS

The home of Peabody Products is a modern plant, operated by an efficient industrial family. Twenty years' experience in the manufacture of high grade School Furniture. Every article sold with a guarantee to give complete satisfaction in every respect. "Peabody" service will please you.

The Peabody School Furniture Co.

North Manchester, Indiana

Write for Catalog and Price List



FOLDING CHAIR No. 51.
Form Fitting 5-Ply Veneers.
PATENTED JAN. 18, 1910.

PEABODY PRODUCTS



TEACHERS' DESKS—SEVEN PATTERNS. Built with Solid Oak Tops.

SERVE YOU BEST



NON-TIP FOLDING CHAIR No. 70. Folds as Flat as a Board. PATENTED NOV. 12, 1918.



The Improved "DETROIT CHAIR-DESKS" (as illustrated) is highly praised by Authorities on Modern School Equipment.

The entire "DETROIT" line consists of High School Single and Double Unit Tables, Tablet Arm Chairs, Kindergarten Tables and Chairs and is worthy of serious consideration.

Detailed information on the complete line will be furnished on request.



DETROIT SCHOOL EQUIPMENT CO.

General Offices and Factory, Holly, Mich.

STRENGTH-BEAUTY-COMFORT—

> It has them all

Viking Standard Finish is a rich olive green and it is baked on to insure a permanent finish. The chairs may be had in standard design in the following finishes: Walnut, Mahogany and Gold-Bronze.

iking All-Steel Indestructible Folding Chair

Ideal for Schools

The Viking All-Steel Indestructible Folding Chair is built to stand up under unusually rough treatment, and misuse that is given to folding chairs.

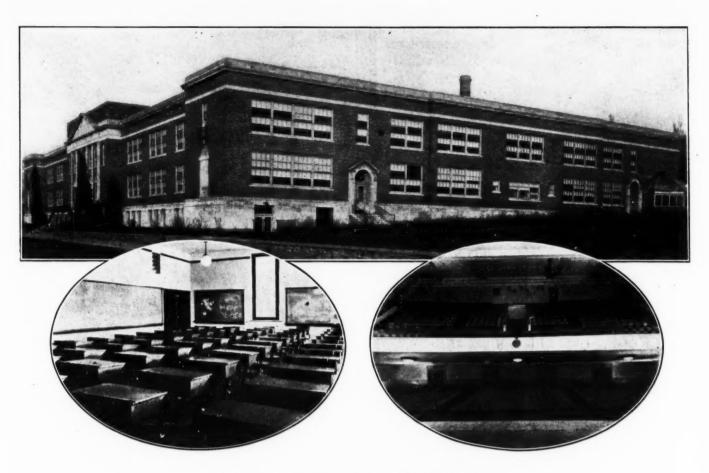
The Viking is built of 20 gauge Steel throughout—is fireproof and cannot be bent or sprung out of shape. It cannot tip, sway, squeak or rattle and its BALL FEET make it noiseless and prevents scratching of the finest floors. It is $32\frac{1}{2}$ inches high when open and the paneled seat is 14 x 13 inches.

Comfort has been built into the "Viking" Chair and with its inclined back it insures perfect comfort, which is not to be found in any other folding chair. We have designed the fibre seat and the full upholstered seat for those who desire even more in comfort.

Write for further details.

The "Viking" Indestructible Folding Chair costs little more than the ordinary wooden

MAPLE CITY STAMPING COMPANY, PEORIA, ILLINOIS.



Warren G. Harding High School

Bridgeport, Conn.

In the years past the school auditorium was a hall for special entertainment—today the auditorium plays a far more important part by taking care of daily classes and study hall hours.

Realizing the importance and constant use of the modern auditorium, too great a consideration cannot be given to the selection of auditorium seating or opera chairs.

In view of this increasing demand for the better school auditorium—The Theodor Kundtz Company have developed and now introduced a new chair that surpasses in construction and beauty all chairs manufactured up to this time.

There are vast differences in School Furniture — see "Eclipse"—know "Eclipse"—buy "Eclipse" and be assured of the best.



MODEL No. 10D OPERA CHAIR

Offices In Principal Cities

An "Eclipse" creation. The only opera chair manufactured having the roller bearing seat hinge. Write for full particular

The Theodor Kundtz Company Cleveland, Ohio



Posture Serviced

The Derby manufacturing schedule for 1927 plans for the indicated increase in demand for our various types of correct posture school equipment. The greatly increased number of installations in 1926 were completed without a bit of tardiness. We intend to continue this policy of service in correct posture.

It seems a natural and desirable aim for this company to accomplish exact deliveries of its equipment. The only company permitted to manufacture under the Thompson patents—covering the original correct posture construction designs—we should couple the best of service with what is generally considered the best of equipment.

We are glad to acquaint educators with the principles of our correct posture construction and with the variety of school units into which this construction is placed.

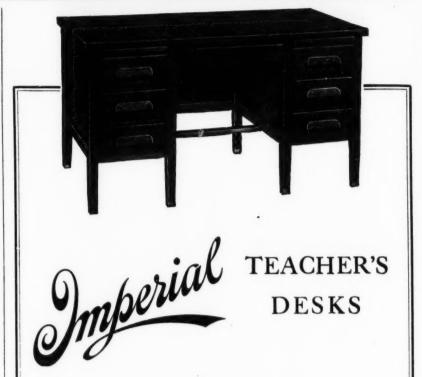
A card will bring our school booklets or, if desired, a visit from one of our school seating specialists.

P. DERBY & Co. INC. Chairmakers for 80 years GARDNER, MASS.

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NEW YORK CITY

BOSTON



If your School Board desires desks above the average or has only a limited appropriation available and insist on buying low priced desks, you can meet the demands from the Imperial line.

Imperial Desks represent a value far in excess of what their moderate price would suggest. Their extreme sturdiness and wearing qualities are due to in-built construction features characteristic in the manufacture of every Imperial Desk. This is reflected in the many years of satisfactory service Imperial Desks render their users.



When ordering school, office or classroom desks, chairs or tables, be sure to specify, "Imperial" exclusively and look for the Imperial Trade Mark.

Circulars and name of nearest School Supply Jobber handling Imperial Desks, will be mailed on request.

IMPERIAL DESK COMPANY Evansville. Indiana.



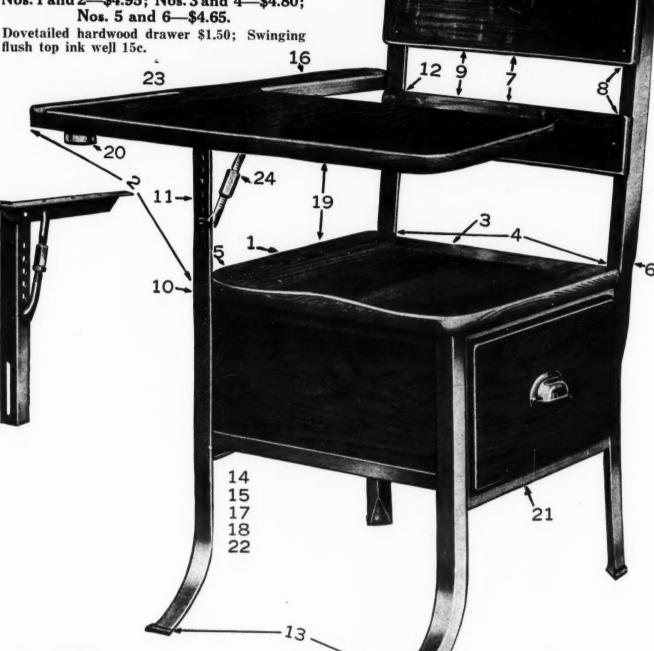
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#+ODZDEZ- FIRMS -ZW PEISTON GHOUDZPEZ- FIRMS -ZW PEISTON GHOUDZPEZ- FIRMS -ZW PEISTON GHOUDZPEZ- FIRMS -ZW PEISTO



Back slats adjustable; Height and tilt of top adjustable.

Nos. 1 and 2-\$4.95; Nos. 3 and 4-





COLUMBIA INDESTRUCTO TEACHER'S CHAIR AT \$3.50

INDESTRUCTO'S POINTS.

- INDESTRUCTO'S POINTS.

 Seat of proper height.
 All corners rounded.
 Seat saddled to fit body.
 Seat of proper width.
 Seat tilted higher at front.
 Back tipped backward slightly.
 Back curved to fit body.
 Back adjustable in height.
 Back of solid quartered oak.
 Seat extends slightly under top.
 Desk height adjustable to child.
 Desk slant adjustable to child.
 Desk slant adjustable.
 11 and 12 constitute a Tilting Top.
 Curved front feet give same strength and effect as separate support.
 Desks easily moved for sweeping.
 Noiseless, no hinges or swivels.
 Arm rest extending backward.
 Simplicity—Examine illustration.
 Durability—Indestructible steel.
 Finish, dull, lasting quality.
 Flush top inkwell, noiseless, removable.
 Box or sliding drawer.
 May be used on either side.
 Nothing to catch dirt.
 Pencil groove on top.
 Adjustable. 13.

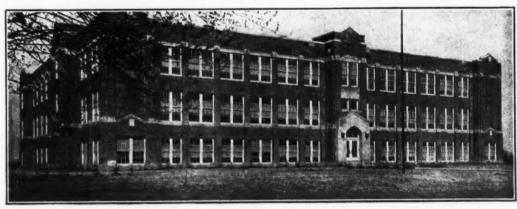
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MOORE BROTHERS ~ PROPRIETORS
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COLUMBIA INDESTRUCTO TAB-LET ARM CHAIR AT \$4.25. WITH PERFORATED SHEET STEEL BOOK SHELF 25c EXTRA



ool Cafeteria equipped with Gunn Lino Tables



Lincoln Consolidated School-Ypsilanti, Mich. Warren Holmes-Powers Company, Architects

GUNN i**no**" Desks

for Teachers

NO" Tables

for Cafeterias are now used in many of our FINEST SCHOOLS

No Breakage of Tops

Quiet and Pleasing

Sample of Top and Full Particulars on Request

THE GUNN FURNITURE CO. GRAND RAPIDS, MICH.

The Model Desk for Modern Schools

"UNION"

Liftop Movable and Adjustable Chair Desk A modern design that embraces many practical features which time and experience have proved entirely correct.

"Union" Liftop Movable Study Chairs represent long experience in designing and producing high grade furniture for the schoolroom. All of the non-essentials have been eliminated; simplicity, durability and serviceability characterize these model pieces of school furniture.

The roomy seat and curved back form a restful combination. The plus or minus adjustment permits the writing table to be shifted to or from the pupil to accommodate his size. The lifting top provides easy means of ingress and egress without the usual distortion.

commodious drawer is responsive and is equipped with stops which prevent falling out unexpectedly. The tops have that natural, permanent slant which experience has taught is the proper angle for both reading and writing. Made In Six Sizes To Fit The Different Grades

Union School Furnishing Co.

High Grade Furniture and Supplies for Schools

BRANCH OFFICES:

dog.

MANUAL TRAINING BENCH No. 280

GLANCE AT THIS NEW PATTERN will show that the combination of various sized drawers and cupboard makes an

unusually practical bench. Notice, especially, the small drawer which is intended to hold nails, screws, small tools, etc., which so easily

become misplaced when kept with the larger tools. Being able to immediately lay hands on these small but necessary items, will be the means of saving a great deal of time, thereby promoting efficiency. Also, notice the large cupboard, which will hold such tools and ma-

terials which can not be kept in the general or three private drawers. Bench is equipped with our Abernathy Rapid Acting Roller Nut

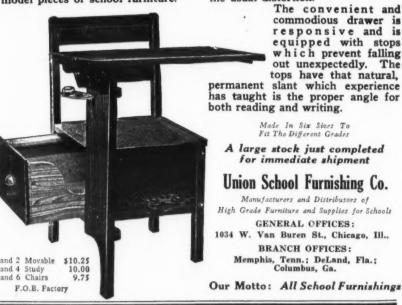
Vise No. 70D on front, adjustable stop and

CHRISTIANSEN

Manufacturer of this line since 1898

2814-2842 West 26th St.,

Chicago, Ill.





Here Is a Desk That Will Make Better Schools

The efficiency of the teacher's work depends upon the degree of intelligent reciprocation on the part of the pupils—

And that reciprocation is determined, to a remarkable degree, upon their comfort.

This Company is pioneering a movement toward more correct and comfortable seating. We ask that you permit us to place the information before you.

Correct Posture Also More Comfortable And More Convenient

The tendency of the average school desk is to force the pupil to twist in the seat—to face the light.

These disadvantages tend toward the development of Spinal Curvature, Defective Eyesight and Nervous Disorders.

Moeser Extended Arm Top

By the use of the Moeser Extended Arm on National Desks we obviate all necessity for the pupil twisting in the seat and facing the light in order to secure support for the arm when writing.

Support for the arm is afforded when pupil is facing the front, with full support for the back when writing. Better penmanship is a result, with less fatigue and nervous strain.

This feature tends to foster correct posture, is more comfortable and convenient, and greatly increases the usable writing and working surface.

Supt. W. J. Hamilton, of the Public Schools of Oak Park, Ill., wrote:

"The Moeser arm rest on the desks is the best thing that we have found to insure correct posture, and the pupils assure us that the seats are more comfortable and more convenient for desk work through the addition of this arm rest. Our Board is placing a large order for further installation of this type of desk."

The Moeser Supporting Arm Top can be furnished with any National School Desk.

We should like to supply you with complete information on this distinct advance in school seating. Write us for circulars, etc.

THE NATIONAL SCHOOL EQUIPMENT CO.
Manufacturers of Complete School Equipment
PORT WASHINGTON, WISCONSIN

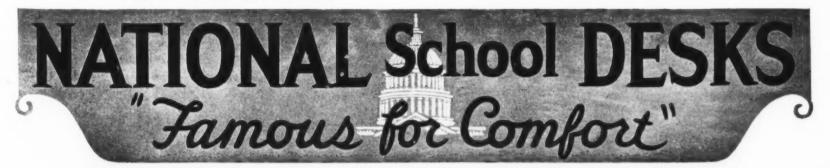


A Wonderful Finish That Does Not "Scratch"

We have developed a remarkable finish, by which the tannic acid in the wood is brought to the surface, bringing with it the natural color of the wood. The finish is developed within the fibre, consequently it cannot wear off nor rub off.

It has a richer, deeper color and a velvety "feel." It is both "hard" and "elastic"; also transparent. It is very pleasing and will harmonize with any interior finish. Woods treated by this process wear longer and retain their original finished appearance longer.

Ask us about it.





THE "ARLO" ADJUSTABLE PEDESTAL DESK

The "Arlo" Adjustable Pedestal Desk is our latest contribution to modern hygienic school room seating. A beautiful desk, both in design and finish, it is absolutely sanitaryexceedingly well adapted to the varying needs of any classroom and guaranteed to withstand the strenuous requirements of every type of class room service.

The pedestal is made of semi-steel, constructed to give greatest strength at the points of greatest strain. The broad, massive base is cup shaped and when screwed to the floor will never pull loose.

The "Arlo" Adjustable Pedestal Desk will last a lifetime; has steel sides and back and the top is made from maple or birch, finished in Arlo Brown (American Walnut).

Adjustments are simple and easily made. Book box chair seat are independently adjustable. This is a distinctive feature and makes it possible to adjust "Arlo" desks to meet the individual requirements of each pupil.

The "Arlo" Line includes The Arlo Adjustable Pedestal Desk with Study Desk, The Arlo Non-Adjustable Pedestal Desk and the Arlo Pedestal Tablet Arm Chair.

Descriptive literature and prices on request.

Arlington Seating Company

Office and Factory

Arlington Heights, Ill.

Flexibility of adjustments assures each pupil being properly fitted, insuring correct posture and real comfort.

MODERN SCHOOLS USE "ELGINS"



The Model Primary School-La Grange, Ill.

THE American Builder recently featured a story about the model primary school at La Grange, Illinois, where the first and second grades are equipped with Elgin School Tables.

Modern schools throughout the country are doing the same thing, for Elgin-equipped rooms permit proper seating arrangement, greater seating capacity, allow more freedom to pupils, permit scientific group instruction, encourage companionship and are more sanitary and hygienic.

RINEHIMER BROS. MFG Co. ELGIN, ILL. DEPT. OF SCHOOL FURNITURE







Features that make for superiority

From the in-built quality of Old Reliable Hyloplate came immediate recognition. From recognition came tremendous demand and volume. Volume reduced overhead . . . and effected great savings. So Hyloplate today is offered the consumer as a quality product at a remarkably low price.

Produced by special machinery, in a factory built and specially equipped for this one product, developed and supervised by experts, Old Reliable Hyloplate has naturally won a position of leadership in the manufactured blackboard field.

Time-tested and proved . . . Old Reliable Hyloplate will not warp, chip, crack or break. It is hard, close-grained ... with a velvetsmooth writing surface of worldwide reputation.

And with these vitally important features are many others which make Hyloplate as efficient as it is economical.

As a result Old Reliable Hyloplate is guaranteed by the makers as well as the distributor who sells it to last 10 years or more. Easy to install . . . in black or green. The genuine has the trade mark on the back. Write for catalog 1H, and free sample.

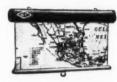


School Supplies backed by this famous Trade Mark.



Geographical Globes

W. C. Globes are specially adapted for school use . . . on desk or table, or hung from ceiling. For 45 years unexcelled in mechanical construction. Imported lithographed maps. Color guaranteed not to fade. Hour circle on each to indicate the time anywhere in the world. 30 styles and sizes. Write for catalog 1G.



Bacon Standard Wall Maps

Larger than others at same prices. Lithographed in 9 colors. Machine-mounted on heavy cloth backing. Engraved to allow a larger map of each country, revised to time of issuing edition. Detail clear and clean. Show comparative time, steamship routes with distances, heights of mountain peaks, and principal railroads. Better, but cost less. 48 x 41—United States, Europe, Asia, Eastern and Western Hemispheres, World, North America, South America, Africa. Write for catalog 1B.



Alpha Dustless Crayon

Patented 57 years ago. Uniform high quality, made of high-grade imported materials in a special factory... no soap, grease or other ingredients harmful to blackboards used. Durable, dustless, sanitary, writes clean and clear. Extra strong. In "hard," "medium," and "soft." Very economical. Write for catalog 1A.



Costello Double Sewed Eraser

Sanitary, easy to keep clean. Reinforced back s curling up, spreading, or breaking down No "pockets" between felts for dust to enter. Nothing but felt used in its construction.
Noiseless. Works better, lasts longer. Chosen by school boards everywhere. Guaranteed perfect.
Write for catalog 1E.

Figures that prove world-wide popularity

For over 43 years Old Reliable Hyloplate has been giving satisfactory service. In the last 30 years more than 42,000,000 square feet of Old Reliable Hyloplate have been sold. In 22 foreign countries . . . and in schools throughout the United States . . . Hyloplate is the accepted blackboard and decidedly the most popular.

As a result of Hyloplate quality and economy, its freedom from imperfections, its fine writing surface, its deep jet black or live green color, its suitability for any sort of chalk ... its general all around goodness . . . there is more Hyloplate in service than all other manufactured Blackboard combined.

Hyloplate is the economical blackboard for permanent or temporary installation. Its advantages merit the most serious consideration for every blackboard requirement. Its record, and the guarantee behind it, assure you lasting blackboard satisfaction. And our catalog 1H, that comes to you with a free sample of Hyloplate, will give you such detailed facts as you should have before you when you specify or purchase blackboard.



Eber Costello Co. Chicago Heights

For Dependable Blackboard Service

solid black clear through The Permanent Blackboard

The Permanent Blackboard Solid Black ClearThrough

NEVERIP NOISELESS ERASER

A one-piece casing eraser of unusual durability, built to live up to the inspiring promise of its name—it will never rip, it can't spread. The best blackboard eraser made.

Free sample upon request.



SIMPLEX NOISELESS ERASER. A high grade eraser now in use in the Chicago Public Schools and thousands of other places. Free sample upon request.

SLATEBESTOS possesses all of the advantages of natural slate and none of its disadvantages. It is strong, sturdy, as hard as rock - actually tougher than natural slate. A permanent blackboard which improves with use, becomes harder and tougher in service and above all it has a perfectly smooth, rich, deep-black writing surface.

School officials and architects planning new buildings or replacements in old should investigate the merits of THE PERMANENT BLACKBOARD.

We also manufacture the well-known SLATE-ROCK AND SLATOPLATE BLACKBOARDS. Furnished in black, green or brown.

Prices and free samples of blackboards upon request.

BECKLEY-CARDY COMPANY

Manufacturers of Blackboards, School Equipment and Supplies

17 E. 23rd STREET

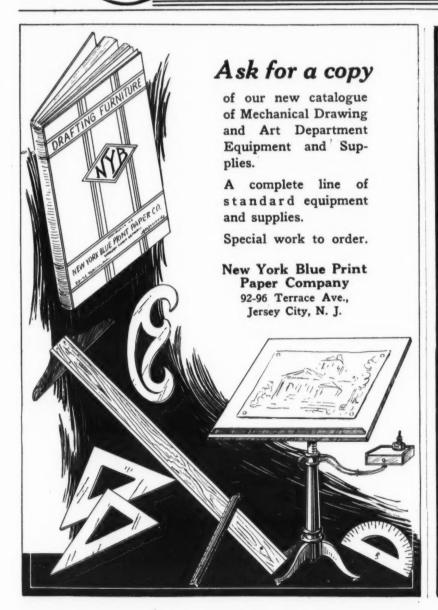
CHICAGO, ILL.

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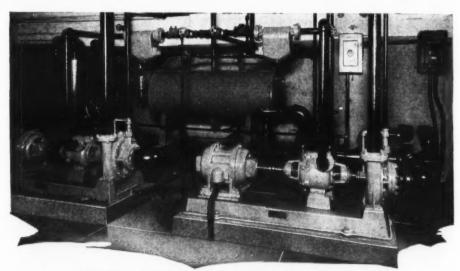
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THE AMERICAN

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January, 1927

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What of the Coming Year?

In this number we shall attempt to demonstrate some of the achievemnets of the past year in the field of American school architecture. These achievements not only reflect a peak year in schoolhouse construction but also an effort which unquestionably surpasses all · similar efforts in the history of the world.

The measure of accomplishment is not only noted in the number of buildings erected in a given period, but also in the recognition of those elements which make for safety, convenience, and practicability. Add to this the further fact that in rearing these splendid structures dedicated to the cause of popular education the grace of design and architectural beauty has not been neglected.

In thus pointing to the achievements of the year that is past, we may also face the new year with a degree of confidence, hopefulness, and enthusiasm. High standards of school architecture have been recognized and there will be no backward turn from the acceptable, the utilitarian, and the attractive.

The schoolhouse of the future will embody in a higher degree than ever before all that the science of construction has evolved, all that art and architecture has achieved, and all the practical innovations that make for the economic and expeditious operation of a school plant. The American schoolhouse will also in the future, more than it has in the past, reflect the pride and patriotism of the American people in their educational system, as well as reflect in splendor of structure their interest and concern in popular education as a basic requisite to national welfare, stability, and perpetuity.

THE EDITOR.

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Editorial Material—Manuscripts and photographs bearing on school administration, superintendence, school architecture, and related topics are solicited and will be paid for Editorial Material—Manuscripts and photographs bearing on school administration, superintendence, school architecture, and related topics are solicited and will be paid for upon publication. Contributions should be mailed to Milwaukee direct, and should be accompanied by stamps for return, if unavailable. Open letters to the editor must in all cases contain the name and address of the writer, not necessarily for publication, but as evidence of good faith.

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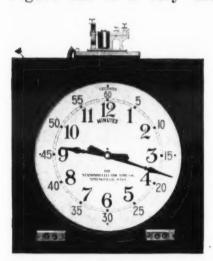


Fig. 126 List No. 560 SECONDS-BEAT CLOCK

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JUNIOR HIGH SCHOOL No. 3, TRENTON, N. J.

Ernest Sibley, Architect, Palisade, N. J.

J. Osborne Hunt, Associate Architect.

Two of the Difficulties in the Way of Getting Good School Buildings

Fletcher B. Dresslar, Nashville, Tenn.

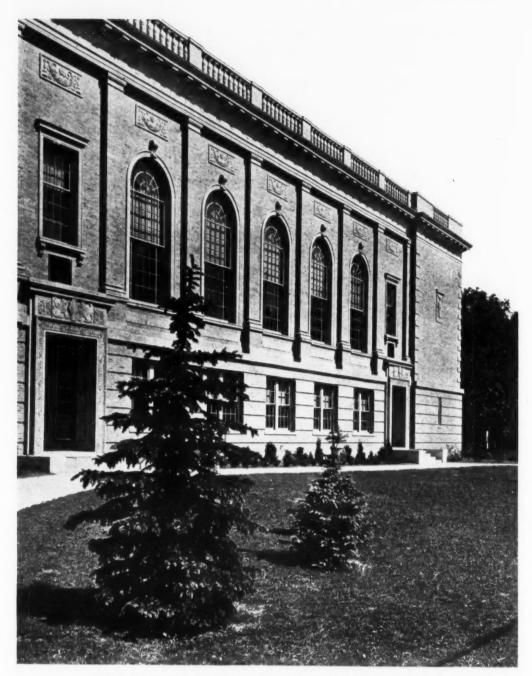
The first, and perhaps one of the most persistent difficulties encountered by those who plan and construct public school buildings, is the almost complete lack of information by the average school board relative to the problems involved. School boards are generally composed of men and women of good standing in their several communities, and who devote much time and labor gratis. For the most part they properly follow the guidance of the superintendent in matters relating to curricula, appointment of teachers, and other questions touching on actual instruction and matters of management. Superintendents know how to handle such problems and their services are extremely valuable. But school boards do not know anything of much consequence on the planning and equipment of school buildings, and what is more, they do not know that they do not know. It simply has not occurred to the great majority of school board members that there are any serious problems involved in the planning, construction, and equipment of school buildings. And, to make matters worse, school superintendents have made no serious and persistent efforts to equip themselves for this part of their school duties. There are notable exceptions, but they are scarce. Hence, boards of education have taken the lead in building programs, and their energies have been expended in employing those architects who sold them much talk and "chromo" elevations, with flags flying and impossible vehicles bringing the crowd to admire.

The First Difficulty

For thirty years it has fallen to my lot to meet with school boards in all sections of our country, to advise with them about school buildings. I can safely say, even conservatively, that for the most part my hardest task has been to lead them to realize that it is a very complicated problem to plan a school building to meet all the particular needs of a given community, and that the ability to solve such problems demands much specialized information to do it economically and well. An unfortunately large number of our school buildings are planned and built without competent advice, simply because it does not occur to school boards that they need advice. They will meet and pass on a plan for a building in a few minutes and not know until the building is ready for use, and frequently not then, that conditions are not as they ought to be, and that they have wasted thousands of dollars uselessly.

I do not believe we have any right to expect boards of education to equip themselves to pass intelligently on plans for school buildings, for they are busy people with other problems dominant. But, we must in some way, teach them that they do not know that they do not know, and thus open the way for advice and guidance from those who are able to help them, and will not at the same time exploit them.

It is much easier to express this hoped for enlightenment, than it is to prescribe a process which will bring it to pass. A hopeful sign appears, however, in the growing tendency in state supervision, or perhaps more truthfully described as state assistance in planning and equipping school buildings. Much good has already been accomplished in helping rural schools, but cities and towns have profited least. There should be in every state department of education a thoroughly trained man who knows school buildings, and whose time should be devoted to helping school boards get the best building the means set apart for this



MAIN FACADE DETAIL, WESTBORO HIGH SCHOOL, WESTBORO, MASS. Ritchie, Parsons, & Taylor, Architects, Boston, Mass.

purpose will buy. He should be ready and willing to work with any honest architect, and in no way share the fees for such service. He, however, should have power to prevent blunders, and at the same time keep himself free from professional entanglements.

The Second Difficulty

The second difficulty lies with the architects, and only under the most dire necessity in country or village, do I ever attempt to get along without them. But, unfortunately, many of them profess to know all about school buildings and promise what they cannot fulfill. It is really amazing how clever many of them are in beguiling unsuspecting members of school boards and civic committees with their glib talk and "chromos". I have known them to sell a blue print and a gaudy elevation to boards of education, without the slightest study of grounds, environment, or curriculum. Such unworthy members of a noble profession have wasted billions of dollars in this country, and even more serious than this, they have harmed the health of millions of children and teachers. How are we to protect school boards from those who thus lead them astray? Here again, we come back to our first statement: Educate the school board to seek the help of competent schoolmen who have been trained in all the problems of school building and school hygiene, and put architects under their control. By control here. I do not mean that the schoolman will

presume to be responsible for strength of material, architectural treatment, or any other part of the work demanding skilled artistry. But the schoolman must command when problems of light, heat, ventilation, and sanitation in its many forms are involved. He must see that

convenience, safety, and all the educational needs are met, without waste or undue outlay.

The Benefits of Expert Advice

There is a time in the process of planning when this help can be given without friction and when architects can profit from advice and control. I have found few architects who were unwilling to listen when shown how to study and lay out a building; but there are not many who will gladly discard a set of blue prints and specifications when shown errors therein. It costs much time and money to work up a complete set of drawings, even if they are thoroughly bad.

I wish, therefore, to recommend to all school boards that the architect be selected because of his honesty, integrity, and general standing in the profession, and then be told that he is to work with some school committee selected by reason of knowledge and ability in school hygiene, some state school building specialist, or someone who can guide rather than find fault or deal in generalities, and that nothing will pass the board without such expert approval.

Of the political tricks practiced by architects on school boards to secure employment, I shall not speak, despite the fact that they have in many instances succeeded. It would not help matters if the state were to employ school architects, and in many cases, harm would result. In the end, competently prepared schoolmen, those who know the needs of teachers and children from an educational point of view, and who have made a thoroughgoing study of school buildings, must guide architects in planning and equipping schoolhouses if we may expect much further progress.

One of the most stupendous blunders in schoolhouse planning I know of was made by one of the most renowned architectural firms in our country. Why? Because there was no competent guidance, and neither was there any sense of need on the part of those who planned for competent guidance. There was no lack of ability or architectural skill. They were simply without essential information and hence planned without clearly defined educational purposes. A few days of careful study and advice from those who really know what should be done would have saved fully one-third of the original cost and all the distresses of teachers and children, due to bad light, bad desks, and general unhandiness would have been prevented. But the building is there for many decades, and meanwhile it is not only harming children, but also teaching others to do wrong.



NORTH WORCESTER SCHOOLHOUSE, WORCESTER, MASS.

Fuller & Delano Co., Architects.

Wall Equipment and Wall Treatment for Schoolrooms

Clarence D. Kingsley, Educational Consultant on School Buildings, Cincinnati, Ohio

The old-fashioned schoolroom was bounded by four monotonous walls, with blackboard extending along all of the space not occupied by windows and doors. In some instances, blackboards were even placed on piers, between windows, where the light conditions were atrocious. As school practice advanced a small bulletin board was made and squeezed in between blackboards. Then a few cases for books and materials were purchased and placed against the wall, but their tops gathered dust, aisles were obstructed, and the general appearance of the room was far from pleasing, or restful to the eye.

This type of room is being perpetuated with little change in many otherwise modern buildings. The attempt to conduct modern education in old-fashioned rooms is disheartening. Even the most enthusiastic teacher, with full cooperation of pupils cannot realize certain important objectives in poorly equipped and inartistically arranged rooms. Not only is the time of the teacher consumed by the lack of conveniences. but necessary materials for instruction cannot be assembled and stored, and the pupils are deprived of the culture that comes from attractive and artistic surroundings. Schoolroom walls and their equipment have not been developed in accordance with modern needs, mainly because their possibilities have not been generally appreciated.

The Selection of Wall Equipment

Decision as to wall equipment for any room should be preceded by an analysis of the activities to be conducted in that room. As a general rule, all the space on walls containing windows will be in demand. In fact, relative values must enter into the final decision.

Fear of increased cost sometimes retards the inclusion of suitable wall equipment. In some instances, however, suitable wall equipment results in actual economy in building costs. It always results in economy in the time of the teachers and pupils and in better educational results. The omission, for instance, of adequate storage and supply cases from schoolrooms where they would be convenient and occupy little space, frequently necessitates storage rooms requiring more space and making certain materials less accessible. Frequently, also, effective window shades, suitable wall treatment. and the proper allotment of space to blackboard and corkboard involve no real question of cost but necessitate study and wisdom in reaching conclusions.

Building plans for which funds do not seem adequate to provide necessary and desirable room equipment should be reexamined. As a general average, floor space in a modern building costs \$4 to \$6 a square foot. A prolific source of waste exists in over-large toilet rooms, in unnecessary and poorly utilized basements. and in stairways too wide for maximum safety. Frequently, also, special type rooms could be materially reduced in size by a study of room layouts and the use of space-saving designs for pupils' desks and tables. Such rooms when needlessly large for their purpose increase voice and eye strain. Then, again, where funds seem inadequate, a reexamination of the schedule of rooms may show that some could be eliminated by putting the remaining rooms to a more nearly continuous use. The omission of room equipment that would add materially to the welfare of the pupils and the effectiveness of instruction must be regarded as specious economy.

The chief wall equipment for schoolrooms from which selection should be made may be

classified on the basis of purpose as follows:

For illumination:
 Windows and window shades.
 Hook for window pole.
 Color schemes and finish of walls, ceilings, and floors.
 Artificial light switches.

2. For visual instruction:
Blackboards.
Corkboards.
Map and display rails.
Magazine and book display rack.
Display case.
Picture-hanging space with mantel shelf.
Electric outlet for lantern.

Electric outlet for lantern,
3. For storage;
Cupboards and drawers,
Vertical files,
Floor cases for charts and posters.
Bookcase,
Pupils' individual cupboards,
Cases for storage of pupils' tote-trays,
Wardrobes for unfinished garments.
Teacher's closet,
5. For cleanlines:

4. For cleanliness:
Outlet for vacuum cleaner.
Lavatory.

5. For temperature control and ventilation:
Thermometer and thermostat,
Windows and air deflectors at windows.
Vent for air to leave room.

6. For communication:
Door.
Telephone.
Loud speaker or amplifier.
7. For time indication:
Clock.

The Principal Requirements of Wall Equipment

Space permits the consideration of only a few of the outstanding requirements for some of these types.

1. For Illumination

a. Windows. Many states define the minimum glass area, the minimum height of the top of the glass, and the side of the room in which the windows must be located. These factors alone are inadequate for satisfactory illumination.

Window sills should not be so low that light shines directly into the eyes. The Code of Lighting School Buildings, sponsored by the American Institute of Architects and the Illuminating Engineering Society, states that window sills should not be less than 3 feet nor more than 4 feet above the floor. Light entering near the level of the tops of desks has practically no value in illuminating the work.

It is important that the top of the window glass should be as close as possible to the ceiling level, in order that light may be reflected down from the ceiling. This light is of great value since it shines directly on the work and not in the eyes.

b. Window Shades. The type, material, color, and operation of window shades have not received consideration proportionate to their importance in the conservation of vision. Opaque shades hung at the top of the window make it impossible to cut out the glare and still retain necessary illumination, and hence they inflict serious injury to vision. With the usual double-hung windows the most practical arrangement consists of two translucent shades for each window, hung near the meeting rail, the upper shade pulling up and the lower shade pulling down. The rollers should be mounted on a narrow board to exclude light from the crevice between the rollers. This arrangement permits the screening of the lower sash without screening the upper sash which admits light effective for the darker desks. These halflength shades are easier of operation and should not get out of order as often as the full length shades.

No shades, however, are effective unless attention is given to their operation. Janitors are sometimes instructed to pull all shades down to the meeting rail at the close of school. As a result teachers frequently in the morning flick on the electric lights instead of operating the shades. This condition would be largely over-

come by the simple expedient of requiring each teacher to see that the entire glass area is revealed before she leaves at night and instructing the janitor to cooperate. No operation of shades would then be required in the morning except when there is glare, and the entire room would have the needed illumination. Moreover, under this plan the sunlight would purify and sweeten the room in the late afternoon or early morning hours. The possible fading of varnish or colors in the room is relatively inconsequential.

By this plan the window shade is not unnecessarily exposed to sunlight, and the appearance of the outside of the building after school hours is beyond legitimate criticisms since all windows are uniform in appearance. Moreover, the rule to reveal the entire window daily is the best way for bringing about the condition whereby all fixtures are kept in working order, such a condition being indispensable to satisfactory illumination.

c. Color schemes and finish of walls, ceilings, and floors. To secure adequate reflection of light from the ceiling and from high friezes, white or light cream is necessary. The surface finish should not be so glossy as to reflect glare but should be sufficiently durable to permit of cleaning without depreciation.

The color and finish of the floor and the lower part of walls should be restful to the eyes. For this reason plastered areas in the lower part of walls, even though small, should not be left untinted.

To afford relief to the eye from reading blackon-white or white-on-black it would appear desirable to make greater use of colors in schoolroom treatment, provided these colors are restful and harmonious. Grays made by mixing lamp black with white paint appear to be especially objectionable from the standpoint of fatigue.

2. For Visual Instruction
a. Blackboards. The amount of blackboard required under present educational methods is less than that formerly regarded as necessary. Rarely does the teacher send many pupils to the blackboard at any one time. As a general rule, 30 to 40 linear feet of blackboard is adequate for almost any room. Approximately 12 linear feet seems adequate for home economics, mechanical drawing, art, typewriting, and music rooms, shops, and study halls. In art rooms, even this amount of blackboard should be so designed that it may be temporarily concealed and the space utilized for exhibiting drawings and posters.

The vertical width of blackboards and the height of their upper and lower edges are important factors in the utility, appearance, and illumination of rooms. As a general rule, the upper edge should not be higher from the floor than 78 inches. Slate higher than this is out of reach of most pupils and may absorb too much valuable light or produce glare. Moreover, the molding at the top of the blackboard should be low enough to permit even the short teacher to reach it for the purpose of suspending maps and charts. The lower edge of blackboards should be low enough to afford adequate writing area for the children for whom the room is designed.

In some recent primary rooms a special low blackboard is provided for the teaching of reading. For this activity a group of children seat themselves near the blackboard. If the teacher places the words too high from the floor, they will appear seriously foreshortened. To avoid this danger the upper edge of this blackboard is lower than the usual height. It is then possible to use a strip of corkboard above the black-

board to a greater advantage than would be the case if the board was higher.

b. Corkboard. The importance of adequate surfaces such that posters, papers, and drawings may be easily fastened to them with pins or thumbtacks is receiving increasing recognition. Much of this area must be near the level of the eye on account of the nature of the material. The strips of corkboard placed above the blackboard may be valuable for various purposes but are too high for general use. Neither will the small bulletin board suffice. Every room needs generous areas of corkboard placed at a height corresponding to and harmonious with the height of the blackboard. In most schoolrooms, every linear foot of wall on the three sides of the room available after other needs have been met may well be used for this purpose. This corkboard helps to form the wainscot of the room and should harmonize with other portions thereof.

c. Map and display rail. Devices have been perfected whereby maps, charts, and posters may be hung from the top of blackboards and corkboards as desired. At least one large school system has installed a device of this sort on the top molding of all blackboards and corkboards in all new school buildings. Many schools elsewhere are using it extensively. This device contains movable hooks from which large maps or charts may be hung and small movable squares of linoleum to which smaller material may be fastened with thumb tacks. Such a device greatly increases the adaptability of the room for visual instruction and special exhibits.

d. Magazine and book display racks. Where the free use of children's magazines and picture books is encouraged, a display rack in which the upper portion of each magazine or book is visible becomes a valuable piece of wall equipment.

e. Display cases. The modern school recognizes crafts and handwork for their educational values. In the elementary grades geography, literature, and history become real to the children through related projects. They learn both from their own creative efforts and from seeing the work of other children. In high schools, the exhibition of good workmanship from arts and crafts departments, and from shops and mechanical drawing classes, is an incentive to students in those subjects and arouses interest on the part of those who might profit by electing them. Hence, display cases should be provided in every new building. While most of these cases should be located in corridors or other places where their contents may be seen by the whole school, small display cases with glass doors and of depth suitable for the material are desirable also within certain schoolrooms.

f. Window shelves, plant boxes, and aquariums. The need for plant and animal life in general science and biology rooms is self-evident though often neglected. Suitable provision, moreover, for plants and pets in elementary rooms not only adds to the attractiveness of the rooms, but also arouses interest in nature, cultivates powers of observation, and gives worthwhile subjects for writing and oral expression.

g. Picture-hanging space and mantel. A notable lack in most schoolrooms is a suitable place in which good pictures may be hung so as to be seen to advantage. This condition has long disturbed persons and organizations such as the Chicago Public School Art Association, desirous of contributing pictures for the development of art appreciation in the schools. In the new-type elementary schoolrooms recently designed by the author for Cincinnati, a picturehanging space approximately 11 feet long and extending down to within approximately 4 feet of the floor has been provided near the center of the wall between the room and the corridor. This wall space has a plaster finish to give an

effective background. It is also recessed approximately 8 inches, the recess extending to or nearly to the ceiling. At the bottom of this space and surmounting cupboards, a mantel shelf 10 inches wide is provided, convenient for vases or other articles that may contribute to the attractiveness of the room.

3. For Storage

Comparatively few schoolrooms have had adequate storage facilities. This defect discourages teachers in gathering and utilizing material that would aid instruction. Modern methods, especially in elementary schools, lay such emphasis upon the use of materials of many kinds that the progressive teacher secures them even when she has no suitable place in which to keep them. Under this condition they cannot be properly classified, are inconvenient of access, gather dust, and make the room untidy and distressing. High school teachers, especially in English and the social studies, find increasing use for pictures, lantern slides, clippings, graphs, charts, maps, and reference books. Much of this must be close at hand and conveniently classified to serve its purpose.

Variation in the types of material necessitate various types of storage facilities. Vertical filing drawers afford the most convenient, flexible, and economical storage for classified clippings, outlines, bibliographies, and certain types of pictures. Every schoolroom, both elementary and high, could well have at least two such vertical filing drawers.

Floor cases in which charts and posters may be kept in vertical position are of increasing value. The usual standard size for these charts and posters is 22x28 inches. Such a floor case has its front hinged at the bottom and a chain near the top to prevent the front from dropping to the floor when the case is opened. As such cases may be shallow from front to back, a convenient place for them is under the chalk trough of the front blackboard.

A book case to which the pupils may have ready access is desirable; in high schoolrooms for reference works, and in elementary rooms for the reading books which are now wide in variety and largely individual in use. Sets of books consisting of duplicates sufficient in number for all the members of a class may be kept more economically in book cupboards.

Pupils' individual cupboards are desirable, specially in elementary schools, so that unfinished projects may be put away and taken out

Cases for tote-trays afford convenient storage in such subjects as sewing. These cases may be locked by half-classes (two cases for each class to avoid congestion in getting and putting away trays) thereby eliminating the individual key problem and freeing the tables from the individual drawers which seriously reduce knee

Cupboards and drawers are necessary for general supplies and miscellaneous materials. Cupboards with adjustable shelves are more flexible and cost less than drawers, but the latter are more convenient and economical for certain types of material.

A teacher's closet in each room provides space for the personal belongings of the teacher.

The selection and designing of storage facilities for any type of room necessitates thorough analysis of the requirements. The amount of such storage desirable, however, cannot be determined by a mere inventory of the materials now used in rooms poorly equipped, for the teachers will secure more material as they have space for it and come to see its value.

At first sight the problem of locating these storage facilities appears difficult. As already indicated, free-standing cases placed against the wall gather dust on their tops, consume aisle

space, and give the room an unfinished appearance. A number of cities have solved this problem by building storage cases into the wall between the schoolroom and the corridor. In buildings in which this wall has already been made thick in order to carry ventilation ducts the problem is extremely simple. These ducts do not utilize the entire length of the space. By slightly increasing the depth of the space and modifying, if necessary, the shape of the ducts, space is economically secured into which these cases may be built.

The building-in of storage and supply cases contains an important element of economy. Only the fronts of the cases need be finished. The sides and backs may be constructed of less expensive lumber. Future developments may result in the larger use of metal for much or even all of these built-in cases.

In certain special rooms, such as science and art rooms, the space in this wall will not suffice. but in addition rear cases, either free-standing or preferably built-in, are required.

Mention has not yet been made of the provision for pupils' coats and hats. The coat room is too expensive of space, reduces the flexibility of the building, and introduces difficulties in design. Wardrobes in the room, even though carrying blackboards, reduce the educational utility of the room where every inch is required for educational purposes. Moreover, with increasing departmentalization in high schools, the corridor locker, or the locker alcove, off the corridor seems to be the logical and economical solution.

For Cleanliness

Handwork and projects involving the use of materials necessitate adequate provision for keeping hands clean in the interests of good workmanship and health. For these reasons lavatories are necessary in art rooms, shops, sewing and cooking rooms. In elementary schoolrooms in which handwork is an important feature, a lavatory would be of great value since it would make it unnecessary for children to leave the room to wash their hands. Where funds are adequate such a lavatory may be placed in a built-in closet about the size of a teacher's closet, and a swinging bubbler may be attached to the cold water faucet, thereby permitting the children to secure a drink without leaving the room.

For Temperature Control and Ventilation Discussion of wall equipment is incomplete without reference to ventilation, since the system adopted determines the location of vent openings, radiators, and thermostats and may

involve air deflectors at the windows.

Confidence in the theories underlying current ventilation practices has been shaken. Long ago carbon dioxide was shown to be as harmless as nitrogen. Ventilation is no longer primarily a problem of chemistry. Under ordinary conditions of occupancy it is held that air cannot be seriously depleted of oxygen. The amount of air actually breathed by the average individual does not exceed 50 cubic feet per hour and the claim is made that an air change of 300 cubic feet per hour per person instead of the 1.800 cubic feet required by the laws of many states would be sufficient to give adequate available oxygen.

While the theorists have been debating ventilation, a practical system of window ventilation has been worked out and put into actual operation. The results are highly satisfactory. Teachers praise it. Health conditions are good. Operation is easy and effective. The system works at all times whatever the conditions of wind or weather. Distressing drafts are absent. When thermostats fail or the weather moderates. windows may be opened as wide as desired.

(Concluded on Page 153)

Building Schools in Denver

Homer W. Anderson, Assistant Superintendent of Schools

After a careful survey of school building needs by Supt. J. H. Newlon and George W. Frasier, director of the department of classification and statistics, a bond issue of \$6,150,000 was submitted to the people of Denver in October, 1922. The issue carried by a vote of three to one. Of the amount voted, \$2,000,000 was set aside for elementary schools, \$1,750,000 for junior high schools, and \$2,400,000 to start the erection of three senior high schools. The voters were told that another issue of approximately \$2,400,000 would be required to complete the senior high schools. In 1925, it was found that the high schools could be completed at a considerably lower figure, and in October the voters approved an issue of \$1,740,000 to complete the erection of the three large senior high schools, and another of \$400,000 for furnishings. The sum of these two issues was a saving of \$260,000 over the original estimates, so that the total bonds voted amounted to \$8,-290,000, instead of \$8,550,000 as originally proposed. For these amounts, the board of education has built five additions to elementary schools; twelve new elementary schools, most of which are first units of larger buildings; two new junior high schools; and three new senior These make a total of 22 differhigh schools. The original elementary-school ent projects. program submitted to the voters called for eleven new schools. Enough was saved by economical planning so that another building, at a cost of \$75,000, was added to the program and

This article presents a brief description of the organization and the method of handling this large building program in the city of Denver. The organization aimed to secure not only first-class architectural, heating, and ventilating services, adequate checks on the structural plans and specifications, and supervision of the actual erection of buildings, but also the best possible educational direction in the planning of each building. To this end, an organization under the direct supervision and administration of an assistant superintendent of schools was formed. Architects and engineers were directly responsible to this officer, who checked and approved all preliminary sketches, final plans, and specifications before submitting them to the superintendent and the board of education.

Architectural Services

The problem which confronted the board of education was how to provide architectural services which would be capable of rapidly preparing plans and specifications. The city of Denver had no well-organized architectural department as a part of the public school system similar to that of St. Louis. Nor was there

available, as there is in Detroit, any large firm of specialized school architects ready to undertake the entire program and prepare all plans and specifications in the short time required. Denver found it necessary to employ an entirely different method. There were in the local architectural profession many firms of high standing. For these reasons it was decided to retain an architect for each project in so far as possible. The larger firms, as a rule, were given the larger schools. Thus, Denver employed 21 different architects for the 22 projects.

Experience with the method of employing a different architect for each job in the building program has demonstrated two important results. First, there is a pleasing variety of beautiful exterior designs, and second, the competition among the architects has resulted in good, well-constructed, and economical buildings.

Mechanical Engineering Services

These branches of the plans and specifications were directly in charge of Mr. James J. Ball, chief engineer of the Denver public schools. The actual preparation of the plans and specifications was in the hands of a firm of heating and ventilating engineers, Howard Fielding and Company, who performed these services on eighteen schools. The plans and specifications for the four remaining schools were executed by heating and ventilating engineers connected with the architects for the buildings. Plumbing plans and specifications were prepared by the same agencies.

Before beginning work on these plans, the board of education called two of the leading heating and ventilating engineers in the United States for consultation. These men were Mr. D. D. Kimball of New York City, and Mr. J. R. McColl of Detroit. These men spent several days in the city studying climatic conditions, Colorado coal, present heating and ventilating plants, and proposed school plans, and submitted independently reports containing their recommendations as to what seemed best for the Denver schools. These reports have been of inestimable value in designing mechanical equipments.

Structural Engineering

It seemed obvious to the board of education that some measure should be provided to safe-guard the safety of children and assure for Denver substantial and economical construction. Since 21 different architects, some without their own specialized engineers, were retained to prepare plans and specifications, it seemed wise to employ an independent firm of structural engineers to review and approve all structural plans and specifications. The firm of Shankland, Ristine, and Company of Denver

was employed to handle this end of the service. They were given full power to change the type of construction submitted by the architect in order to secure more economical construction, or to increase the factor of safety. In several instances this was done giving Denver not only cheaper but better construction.

Supervision of Construction

Two agencies superintended the actual construction of the buildings. The main responsibility for this service rested with the architects, who furnished full-time supervision on the larger buildings and daily inspection on the smaller schools.

The board of education was also represented in this capacity by the supervision provided by Shankland, Ristine, and Company, structural engineers for the board. This firm supervised carefully all concrete and steel work, employing men full-time on each job while the work was going on, and submitted monthly reports of progress and workmanship on each building. They also checked all quantities and prices involved in extra excavations or changes from the origional plans, and approved same before being passed by the board of education.

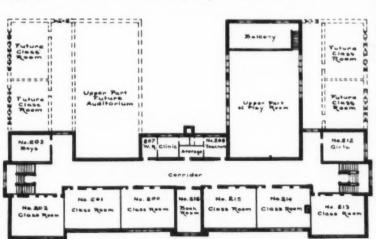
Method of Compensation

The architect's fee of six per cent paid for all architectural, supervisory, and engineering services on the school buildings. The contracts with the architects provided that the mechanical engineer's fee should be paid for out of the six per cent fee but that it should not exceed three per cent of the cost of the heating, ventilating, and plumbing installations. The structural engineers employed by the board were paid out of the six per cent architect's fee up to onefourth of one per cent of the cost of the building for reviewing and checking all plans and specifications, and for supervising construction as directed by the board of education. The compensation of the structural engineers was in the form of a monthly retainer fee, which was charged to the different buildings under construction in proportion to the time and work employed by the engineers on each job.

Directing Agency

As was mentioned at the beginning of this article, 21 different architects and the various engineers worked under the immediate and specific direction of an assistant superintendent of schools. This officer was the direct head of the building program, who not only coordinated and standardized the work of the above-mentioned agencies, but also gathered from schools, school teachers, and officials all the best, up-to-date information regarding school buildings, school programs, organization, size of class-

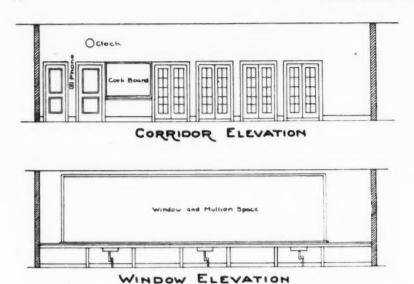


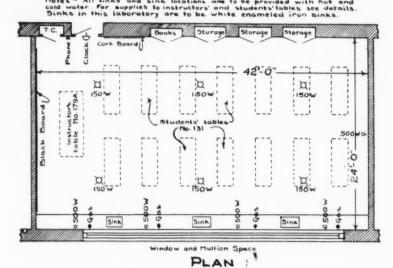


First Floor Plan.

BARNUM ELEMENTARY SCHOOL, DENVER, COLO. Floyd Redding, Architect.

(Present building in solid lines; future additions in broken lines.)





THESE DIAGRAMS OF A TYPICAL PHYSICS LABORATORY ILLUSTRATE THE TYPE OF DETAILS SUBMITTED TO ARCHITECTS EMPLOYED ON THE DENVER SCHOOL BUILDING PROGRAM.

rooms, laboratories, equipment, and so forth, and interpreted these data in terms of school building requirements for the city of Denver. The interpreted needs were furnished the architects so that they had all the necessary information dealing with school standards, such as number of rooms, dimensions of rooms, corridors, stairs, blackboards, toilet facilities, wardrobes, materials to be used in the finish of walls and floors, lighting, built-in equipment, and in fact everything which had to do with making the building fit the Denver educational program and the needs of teachers and pupils.

Development of Plans and Specifications

The architect, after conference with the assistant superintendent in charge, was requested to prepare preliminary plans embodying the educational requirements and the policies as set up by the board of education. These policies will be discussed later. The first sketches were presented to the assistant superintendent, who checked them to determine: (1) Whether they followed the general policies as determined by the board of education; (2) whether they included all requirements; (3) whether the different facilities were located to the best advantage in the building; and (4) whether savings in space could be effected. The last problem is very difficult for conscientious architects, because it is often impossible for them to determine how reducing sizes or rearranging facilities may disturb the educational program of the building. It is, therefore, a problem which requires the cooperation of the architect and the educator.

The preliminary sketches submitted by the architect were usually made the basis for the building plans. Departure from this policy occurred only where the plans submitted seemed wholly unsuited for the purpose intended. Corrections or changes were marked on the architect's preliminary sketches and returned. Sketches embodying all suggested changes were resubmitted. Suggested improvements and sketches were exchanged until all difficulties seemed to have been overcome. In these processes the sketches had been submitted to the different department heads until approved by them, when they were presented to the superintendent of schools. As soon as satisfactory to him, they were submitted to the board of education for their approval. It was seldom that these officials made any suggestions on the floor plans, but when made they were usually excellent. The board, however, rejected elevations or freely offered suggestions on the exterior

After the approval of the preliminary sketches by the board of education, the assistant superintendent in charge of the building program kept in close touch with the architect, furnishing him with details of all kinds, and offering suggestions and improvements as the final plans

Final plans and specifications were approved in the same way as the preliminary sketches by all department heads, assistant superintendents, and the superintendent of schools before they were submitted to the board of education. skeleton outline of the specifications which showed the different types and materials of construction was prepared, and reviewed by the board of education in lieu of the laborious task of reading the entire specifications.

School Building Policies

Before any important steps in making plans for an extensive school building program were taken, certain policies and standards were adopted by the board of education. These policies and standards were the fundamental guides for the making of plans and specifications. For instance, an eight-grade elementary school might possibly be planned quite differently from a six-grade elementary school, or a platoon school differently from the traditional elementary school organization. It is quite important to know definitely beforehand that school buildings shall or shall not be grade level. Unless policies and standards such as these and many others are definitely adopted by the board, architects, school officials, and the board of education may waste a good deal of valuable time and money.

Seven-Three-Three Plan

Several years ago Denver adopted the policy of housing the pupils in grades, kindergarten to twelve, in three types of schools-the kindergarten to six, inclusive, in elementary schools; the seventh, eighth, and ninth in junior high schools; and the three upper grades in senior high schools. Upon the completion of the present building program, which contains two large junior high schools, practically all of the pupils will be housed in the seven-grade elementary schools, and three-year junior and senior high schools. There will be about sixty elementary schools, eight junior, and five senior high schools.

Elementary Schools

Since the development of the platoon or workstudy-play school, there has come about a decided change in the planning of elementary schools. It was, therefore, imperative that the board of education adopt a policy of elementary school organization so that the building may be planned to adequately serve such a school.

Upon the recommendation of Supt. J. H. Newlon, the board of education adopted the plan of adapting all new schools to the platoon scheme, but keeping in mind a flexible type of building, in case the future should bring forth other methods of organization. If a small first

unit be built the ultimate building should be planned to serve this organization. In any case the traditional organization can be used.

The board upon the recommendation of the superintendent, adopted these policies and standards for elementary schools as follows:

1. All elementary school buildings shall be of the open type to insure the best possible light and ventilation in the classrooms.

All new elementary school buildings shall

be above or at grade.
3. Additions shall be made to conform in architecture with the building already erected.
4. The size of the standard classroom shall

4. The size of the standard classroom be 22 feet in width and 30 feet in length. 5. The kindergarten shall occupy space equal to about two classrooms.

6. The size of special rooms, such as manual training, home economics, science, and so forth, shall vary according to the needs of the school.

shall vary according to the needs of the school.

7. As a rule, the elementary auditorium shall be built primarily for instructional purposes and as such shall be built for about 300. However, in certain communities the community use of the auditorium will require a somewhat larger canacity.

capacity.
8. In the larger elementary schools, the standard gymnasium shall be 40 feet in width, 60 feet in length, and 16 feet in height below

60 feet in length, and 16 feet in height below the trusses. In smaller schools where playroom and auditorium may be combined, the size shall be 22 feet in width and not over 60 feet in length, leaving a space which can be changed to make two classrooms as needed.

9. In the larger schools where 40 feet by 60 feet gymnasiums are built, there shall be provided two small locker and shower rooms, one for boys and one for girls. These shall be large enough to accommodate forty 12 inch by 12 inch by 30 inch lockers. About five showers should be provided in each. 30 inch lockers, provided in each.

10. Quarters for physical training teachers shall be provided in connection with the gymnasium.

11. Each of the large elementary schools shall be provided with the following facilities:

Small medical clinic.
Library about classroom size.

(3) Built-in corridor lockers sufficien
number to take care of the school.
(4) Teachers' rest room.
(5) Small lunch room and kitchenette. sufficient in

High School Standards

Junior and senior high school standards were adopted as follows:

All high school buildings shall be of the open type to insure the best possible light and ventilation.

Buildings shall be grade level.

Buildings shall not be over three stories ight, except that the lunch rooms may

3. Buildings shall not be over three stories in height, except that the lunch rooms may occupy a fourth story.

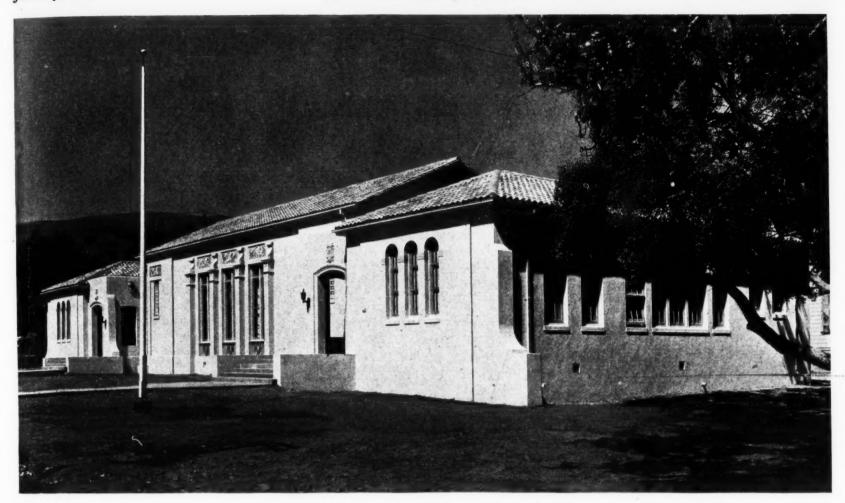
4. The standard classroom shall be 22 feet wide and 28 feet long in junior high schools, and 23 feet wide and 26 feet long in senior high schools.

5. The science laboratories, manual training, cooking, sewing, art, shop, and commercial rooms shall be large enough to accommodate

the equipment for 35 pupils.

6. The auditorium shall be large enough to accommodate at least one-half of the ultimate school capacity in junior high schools, and the entire original capacity in senior high schools.

(Continued on Page 153)



SUNOL GRAMMAR SCHOOL, SUNOL, CALIF. W. H. Weeks, Architect, San Francisco, Calif.

Purposeful Rural School Buildings

Eugene Jerel Irwin

There has been a definite change in the last few years in the ideas incorporated into the construction of moderate-priced small rural or district schools. This development has been toward additions to the old type school that more nearly meet the needs of the surrounding community. Thus, community meetings, camp fire girls, boy scouts, and like activities are given consideration in plans for the structures which are to be the center of the educational and social life of the community.

The writer, therefore, sought out a group of such buildings that he felt were economically built, sensibly planned and artistically arranged. In a word, they not only fit the needs in a social way but are good to look upon, and so constructed that growth may be taken care

of with a minimum expenditure, in addition to meeting the requirements of first class construction and equipment.

After visiting a score of new buildings the following three were selected as most nearly filling these needs. These buildings were constructed by Architect Wm. H. Weeks of Oakland, California, who has built scores of fine schools that stand as monuments to his careful and capable workmanship.

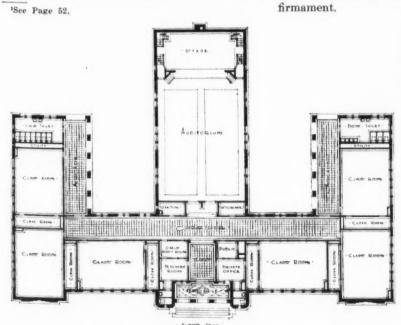
These schools are the Soquel grammar school, Soquel, California; Piedmont elementary school, Piedmont, California, and Sunol grammar school, Sunol, California. All three are of exceptionally fine construction and show attention to detail and, with the exception of the Piedmont school, are new stars in a rural firmament.

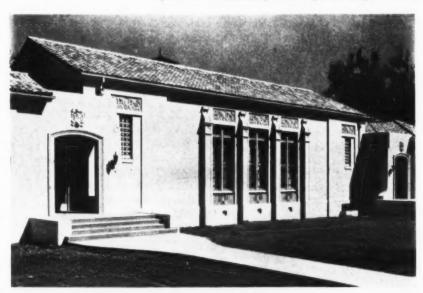
Sunol Grammar School, Sunol, California

This building is designed for the community needs of a small California town. It is arranged for school purposes and also has a community center.

Besides the classrooms and cloakrooms, provision has been made for a community room, with a kitchen in connection where socials with refreshments may be held. It is used for boy scouts' and camp fire girls' headquarters, as well as a county library. A spacious fireplace is one of the features of this room, which is arranged for use as an emergency classroom or kindergarten.

There is an auditorium with a seating capacity of 450 people. A large stage and moving picture booth are contained in the building. A level maple floor in the auditorium provides space for community dancing and large socials.





SUNOL GRAMMAR SCHOOL, SUNOL, CALIF.

SOQUEL UNION GRAMMAR SCHOOL, SOQUEL, CALIF.
W. H. Weeks, Architect, San Francisco, Calif.

When the floor is cleared, the folding chairs are stored in locker spaces under the stage. Special rubber-tired trucks are used for collecting the chairs.

The building is entirely heated by electricity. Special electric heaters are placed in recesses in the walls.

Spanish renaissance is the motif of design, and lends itself admirably to the architectural A Spanish tile roof enhances the problem. beauty of the building. The building cost approximately \$40,000.

Soquel Grammar School, Soquel, California The Soquel grammar school reinforced concrete building, containing six classrooms, with individual cloak rooms, a principal's office, library, teachers' room, rooms for boys and girls, and an auditorium with a seating capacity of six hundred people.

The building is designed in Spanish renais-

sance architecture, and presents an imposing

The auditorium has a 24' stage, dressing rooms for both boys and girls, and an up-to-date moving picture booth.

appearance. It has a modern steam heating plant. The cost was \$52,500.

Piedmont Elementary School, Piedmont, California

The Piedmont elementary school is a very distinctive type of school building, and having been built in a high-class residential section, the building harmonizes with the surrounding neighborhood.

There are three classrooms on the main floor and two unfinished classrooms in the basement, which will be completed when an increased attendance justifies it. In addition to the classrooms, a kindergarten room with individual juvenile toilets has been provided. The kindergarten is also arranged so that it may be used for small neighborhood meetings and socials. A spacious open-air terrace adjoins the kindergarten and is used for out-of-doors exercises and games.

The building is equipped with sanitary toilets and an up-to-date steam heating plant.

The cost of the building was \$32,000.

Schools Bonds

H. M. Bucher, Chicago, Ill.

Much has been written about problems confronting school officials in the issuance and sale of school bonds but few school authorities are familiar with the problems of the investment banker who purchases and resells school secu-

There is no logical reason why a school district launching a program of development should not retain a financing specialist at the same time that an architect is employed. A school system can be no stronger or larger than its financial foundation and this foundation should be planned to take care of future growth just as the school buildings are planned. Today many districts are paying the price of ignorance. short-sightedness, and failure to observe natural laws of growth and development. Probably the thing most to be desired in school finance is elasticity. A sudden increase, or a sudden decrease, in assessed valuations may bring about conditions of great seriousness by making available large funds which cannot be profitably employed pending maturity of bonds, or by failing to produce funds sufficient to pay maturing principal and interest.

The average layman does not understand the determination of values by the bond house. He cannot see why one municipality finds a ready and satisfactory market for its securities, while another finds difficulty in raising funds. The following are some factors usually taken into consideration by the investment banker:

1. The past record of the borrower. Several municipalities have been compelled or have seen fit to compromise payment of bonded indebtedness or to flatly refuse to pay—usually using some technicality as an excuse. Even though many years have passed, the failure to pay debts when due, (even when legally set aside) is reflected in the price paid for new securities. The south is still penalized for the wild borrowing of the days following the Civil War.

The willingness and ability to pay. Combined with tax income sufficient to pay current expenses, bond interest and maturing principal, there should be satisfactory moral standards of taxpayers and officials. What this may mean to the investor has been recently demonstrated in the state of Texas. The Supreme Court of the United States declared unconstitutional the act under which had been issued about \$80,000,000 road district bonds. This was ample legal excuse for cessation of payment but in an overwhelming majority of cases payments were promptly made. A special session of the state legislature was called and validation proceedings passed.

3. The population and its composition. A large population is very nearly certain to mean a permanent community. Certain nationalities are definitely proven to have senses of obligation not inherent in other strains and this moral responsibility seems to be inherited by the offspring of these peoples. As a general proposition the Nordic races have a high standard of responsibility as regards payment of debts.

The assessed valuation and the ratio of 4. bonded debt thereto. The valuation of property as fixed for purposes of taxation is in most states used as a basis of debt limitation and in states where borrowing for municipal and school purposes is restricted, the borrowing power is placed at a certain percentage of the assessed valuation.

5. The laws of the state in which the borrowing district is situated. The laws of some states provide for an unlimited tax for the payment of interest and principal of the bonded debt of its subdivisions. Other states limit the millage that can be levied and collected for all school purposes. The investor realizes that a bond payable from an unlimited ad valorem tax is safer than a security payable from a limited tax levy on account of the fact that a severe reduction of the assessed valuation would be likely to cause a deficiency in revenue unless it were possible to increase the levy on the smaller valuation. Several states limit by constitution the ratio of debt to assessed valuation. The constitution of the state of Indiana forbids the issuance of school bonds to more than two per cent of the assessed valuation of taxable property. This restriction combined with an excellent record enables small districts in that state to secure an interest rate lower than that paid by large districts in many other states.

6. Complete satisfaction that the bonds are legally and regularly issued. This is usually established by the examination of the proceedings by one of several firms of attorneys specializing in bond legality.

7. The stability of the community. Bonds of cities largely dependent on one industry are less desirable in the eyes of the investor than those of places with well diversified sources of income. There are several western mining communities now practically abandoned boasted large populations in comparatively re-

8. Supply of similar types of investments. Large security purchasers usually limit the amount placed in one community and in one state and as issue follows issue by one school district, a constantly narrowing market is encountered.

9. Even the quality of paper and printing enter into the valuation of long-time securities as an experienced investor will not put into his strong box a twenty-year bond that is likely to become illegible or torn before its maturity

10. Maturity. A serial maturity bond is popular for two reasons: (a) A desire to liquidate indebtedness is evident. (b) A variety of maturity dates is available to the purchaser who requires repayment at some particular time.

The above is only a partial list of items to be considered but will serve the purpose of showing that the issuance and sale of bonds is a business in itself and should be handled by specialists. The more progressive school districts and cities are fast coming to realize that a permanent investment banker connection is not only desirable but necessary. Extreme care should be taken in choosing a banker for the long time financing but once a competent firm is chosen its advice and recommendations should be followed religiously and this firm should be selected and called into consultation before a single step is taken toward the issuance of bonds. The percentage of bond issues that have to be readvertised, revoted, and resold is surprisingly great and involves needless expense to the district as well as embarrassment to officials.

Many authorities fail to realize that the sale of bonds is only a means of borrowing money. The investment banker should be approached with the same attitude with which the commercial banker is approached and it should be ever kept in mind that the object of negotiations is to borrow money for a long time without collateral security. Advantageous terms can best be secured by making the security attractive to the lender.

WESTBORO HIGH SCHOOL, WESTBORO, MASSACHUSETTS

(See Pages 53 and 54)

This building is in the Georgian style of architecture, using a light colored brick with limestone trim, granite underpinning, steps, and buttresses, and tar and gravel roof. The plan of the structure is square, and the corridors and stair towers are fireproof throughout.

Upon expansion of the system including a junior high school, this building will become the senior high school.

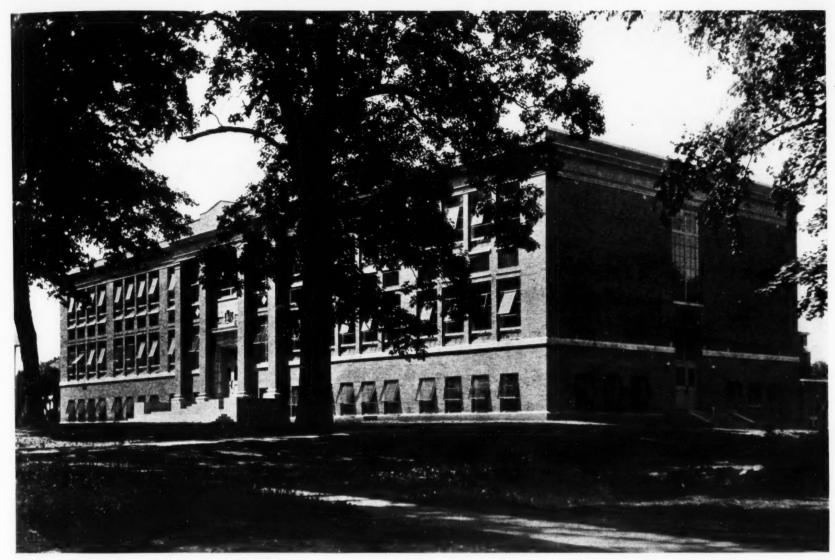
On the basement floor is located the gymnasium with bleachers along one side, having a seating capacity of 250 people. Here also is an apparatus storage room, superintendent's storage room, with the usual boiler room, coal pocket, fan room, and service room.

The shops, sewing room, domestic science, lunch preparation, lunch serving, superintendent's rooms, boys' showers, lockers and toilets, physical director's room, girls' showers, lockers and toilets are on the ground floor. On this floor the bleachers which extend into the upper part of the gymnasium are reached through entrances in the glazed corridor partitions.

The first floor contains the auditorium with a seating capacity of 400 people, classrooms, principal's offices, teachers' room, book and chair storage rooms, dressing rooms, and toilets.

On the second floor are classrooms, typewriting, bookkeeping, and lecture rooms, physics and chemistry laboratories, study hall, toilets, book storage, and general storage rooms. The motion picture booth is entered directly from the corridor.

(Concluded on Page 158)



ENFIELD HIGH SCHOOL, THOMPSONVILLE, CONN.

THE ENFIELD HIGH SCHOOL

For several years the Town of Enfield had felt the need of a new high school, but owing to the high cost of building, it postponed definite action until January, 1923. In the meantime a subcommittee of the school committee had visited many of the new buildings in New England in order to find the best in modern school construction. They also consulted several school architects and had suggestive plans and esti-mates of cost made. With this data in hand the school committee went before the Town Finance Board for their approval of the estimated cost. After careful consideration the sum of \$250,000 was recommended to the town to build and equip a high school to accommodate five hundred This recommendation was approved at a town meeting and a building committee appeinted, consisting of eleven members, five from the school committee, three selectmen, and three other citizens.

The building committee reviewed the work of the previous committee and then asked several architects to submit plans which would come within the appropriation. After careful consideration the Frank Irving Cooper Corporation was chosen, as their plans were adapted to the needs of Enfield and their estimated costs were the lowest. When the bids were opened it was found necessary to ask for an additional \$27,500 to cover the cost of equipment.

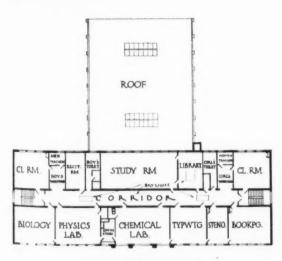
Not only did the town need a new high school but it also needed a gymnasium and a hall suitable for graduation and for other large school or community functions where at least a thousand persons could be seated. To build each separately was to increase the cost beyond the town's ability to pay, so that it was decided to combine the gymnasium and hall. The various plans in other schools were studied, and as a result, a new plan was suggested by the superintendent of schools and the details worked out

Frank Irving Cooper, Architect, Boston, Mass.

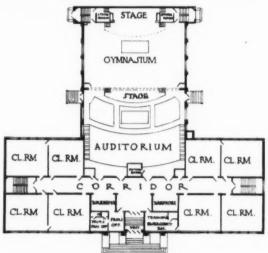
by the architect. The unique feature in this arrangement is a movable stage which is placed in front of a heavy collapsible partition which separates the gymnasium from a small auditorium, this latter accommodating about five hundred pupils.

When the partition is folded up into two small pockets at the sides of the hall, the small stage is rolled through the gymnasium and forms the front of another permanent stage, over all of which extends a gridiron for the purpose of dropping the scenery. This combined stage seats about eighty persons and is large enough for school plays. With the gymnasium added to the small auditorium, the seating capacity is increased to a thousand. In the rear of the small auditorium are eight rows of raised seats, which make it possible for the principal of the school to supervise his school very easily when the room is used for school purposes, as well as to permit the audience in the rear of the large

(Continued on Page 154)

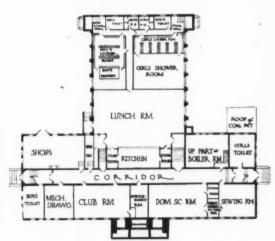


SECOND FLOOR PLAN



FIRST FLOOR PLAN

ENFIELD HIGH SCHOOL, THOMPSONVILLE, CONN.
Frank Irving Cooper, Architect, Boston, Mass.



BASEMENT FLOOR PLAN

EUREKA JUNIOR HIGH SCHOOL John J. Donovan, Oakland, Calif.

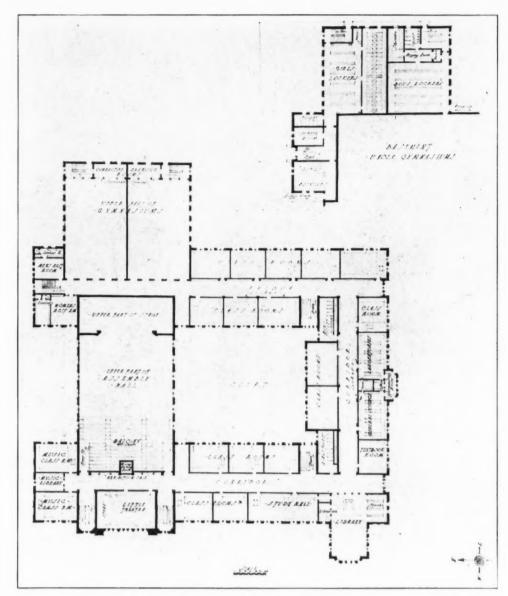
Situated on the Northern Coast of California and bordered on the south and east by a forest of gigantic Sequoias is the quaint but active city of Eureka—a little nation unto itself. So complete an entity is this community of 18,000 souls that almost absolute isolation from the rest of the world would hardly be sensed were it not for the city's own keen interest in what the world is doing.

A night's ride on the sleeper from San Francisco lands the traveller—and there are many who visit this picturesque country—the next morning into a scene of pasture feeding, fat dairy producing cows, for it is quite a dairy country. Then in about an hour after breakfast time the train approaches the city, not so very interesting on entering from the south, as this is the heart of the redwood lumber industry not only of California but of the world, and lumber yards seem to abound before the train reaches the depot, which is also the terminus of the line.

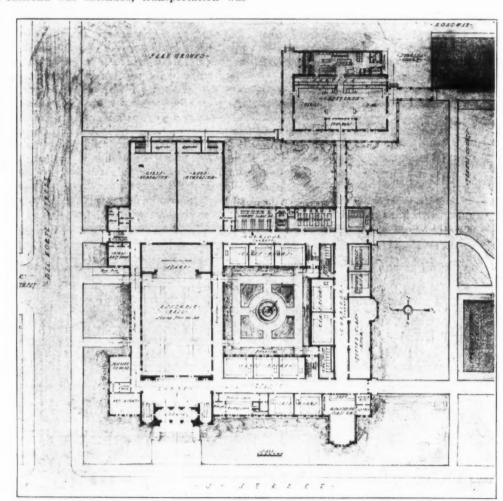
Like most the older and remote cities of California the railroad station and its neighborly landmarks are anything but inviting. More often they remind one of old discarded clothes, spectres of faithful service during toilsome and indigent days.

A short bus ride over a few rough spots and then onto well-paved streets leads to the picturesque lovely country-club hotel—the Eureka Inn. Here may be truly felt the finer qualities of a community striving to express its gracious hospitality to the visitor. The men of the community who built this hotel have given it the charm and glow of a beautiful country manor converted into a club hotel and with nothing more than the room clerk and the bell-hop to dispel the thought that you are visiting some fine old acquaintance at his country home and you are to enjoy the elegance of it all.

Eureka was first discovered by white men in 1849 and not until about ten years ago when the railroad was extended, transportation was



FLOOR PLAN OF THE EUREKA JUNIOR HIGH SCHOOL, EUREKA, CALIF.
John J. Donovan, Architect, Oakland, Calif.



FLOOR PLAN OF THE EUREKA JUNIOR HIGH SCHOOL, EUREKA, CALIF.
John J. Donovan, Architect, Oakland, Calif.

only by water and highway. But what a city it is now! There is something about the people which appeals strongly to those who have lived with them and which stirs reflections and memories as we look back and try to fathom why good-will is there. I can't help but believe that it's almost entirely due to their buoyant confidence not only in themselves but in their destiny.

To the average reader all this may be superfluous as a prelude to the description of illustrations of a school building, but when it is realized that this city bonded its real values to the extent of \$450,000 to build a junior high school—mark you, a junior high school—it is no wonder that a sense of amazement follows acquaintance with the fact. No wonder the mayor of Boston a few years ago picturesquely and expletively inquired, "How in h—— did

they do it?"

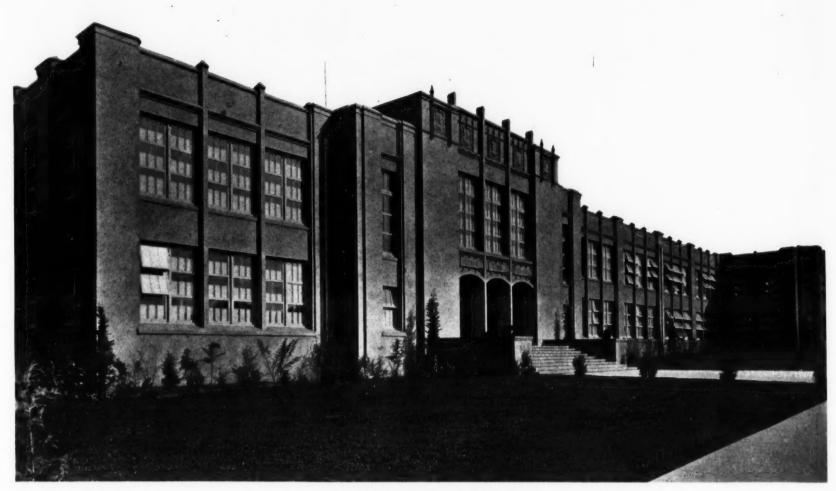
No less picturesque is the very able and tireless superintendent of schools, Mr. George B. Albee, a man of about 64, born in Eureka, educated at Stanford, and very much alive and elert to the progress of education. It is to the credit of his vision that Eureka has a modern Junior high school building equal to any of its kind in the country. It was that same vision which directed the purchase of sufficient land additional to what the high school previously

school and community activity.

Close examination of the plot plan will disclose the scheme. The center or small building is the present high school; the building to the left is the new junior high school; while the building to the right, marked "future high school," is for that purpose. Industrial shops

owned so as to have 30 acres for secondary

are shown to the rear directly back of the pres-(Concluded on Page 156)



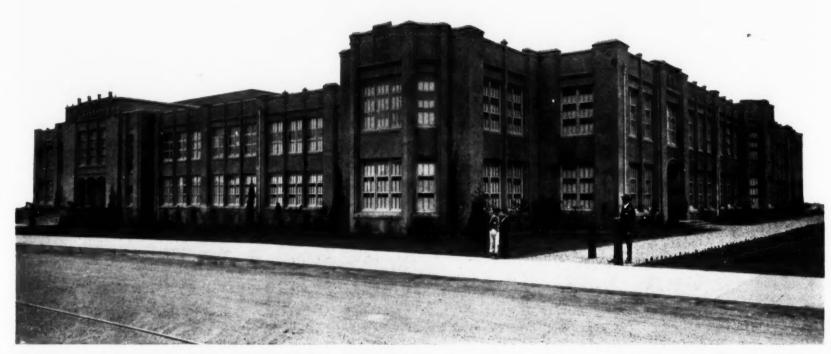
MAIN FACADE LOOKING SOUTHEAST.

EUREKA
JUNIOR
HIGH
SCHOOL,
EUREKA,
CALIF.

John J. Donovan,
Architect,
Oakland, Calif.

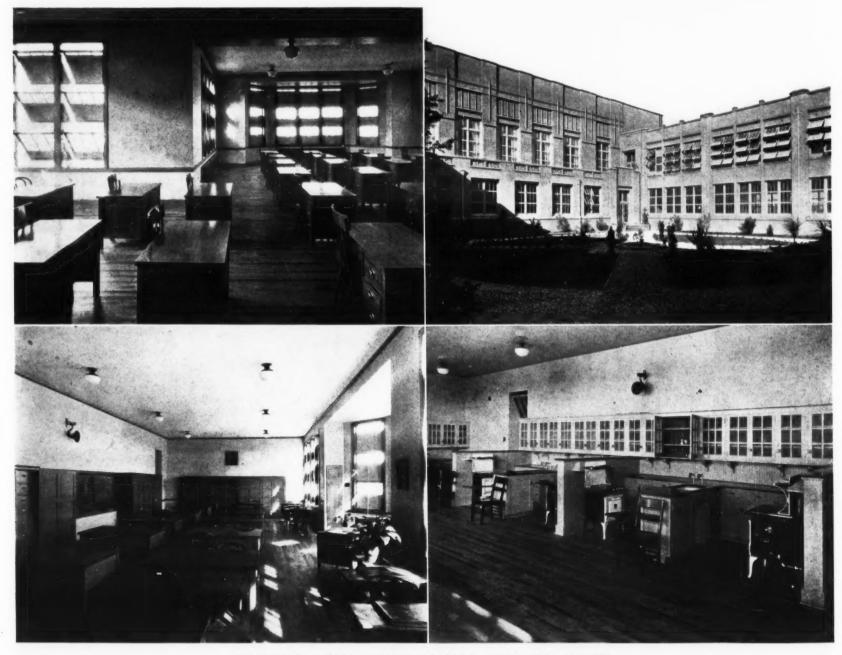


AUDITORIUM LOOKING TOWARD STAGE.

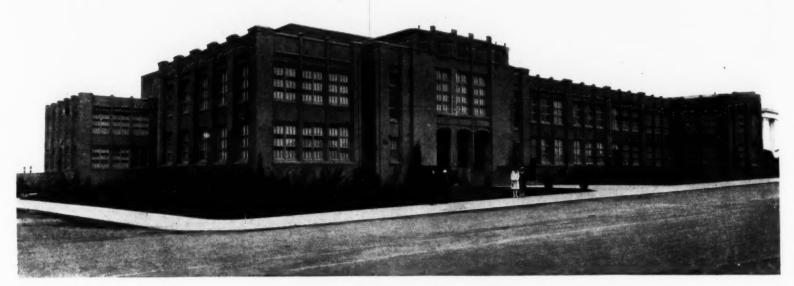


SOUTHWEST CORNER OF THE EUREKA JUNIOR HIGH SCHOOL, EUREKA, CALIF.

John J. Donovan, Architect, Oakland, Calif.



EUREKA JUNIOR HIGH SCHOOL, EUREKA, CALIF.
TOP: Bookkeeping Room, and Interior Court Looking Northeast. BOTTOM: Sewing and Millinery Room and the Cooking Room.

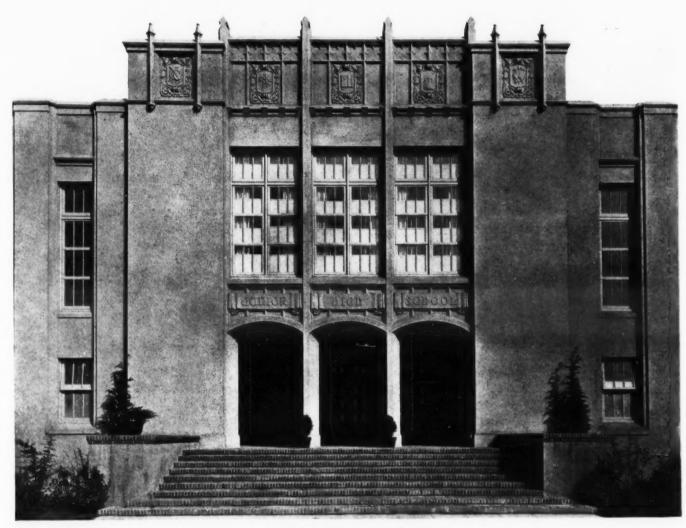


EXTERIOR VIEW, NORTHWEST CORNER.

EUREKA
JUNIOR
HIGH
SCHOOL,
EUREKA,
CALIF.

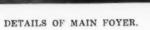
John J. Donovan,
Architect,

Oakland, Calif.



DETAILS OF MAIN ENTRANCE.





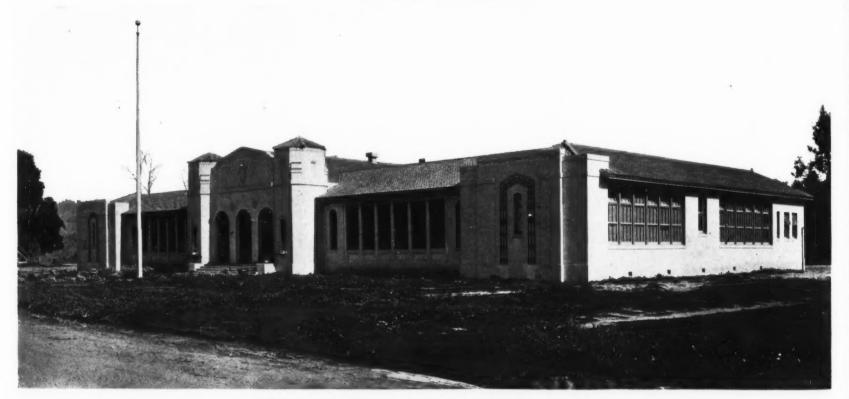


PIEDMONT PRIMARY SCHOOL, PIEDMONT, CALIF. W. H. Weeks, Architect, San Francisco, Calif.

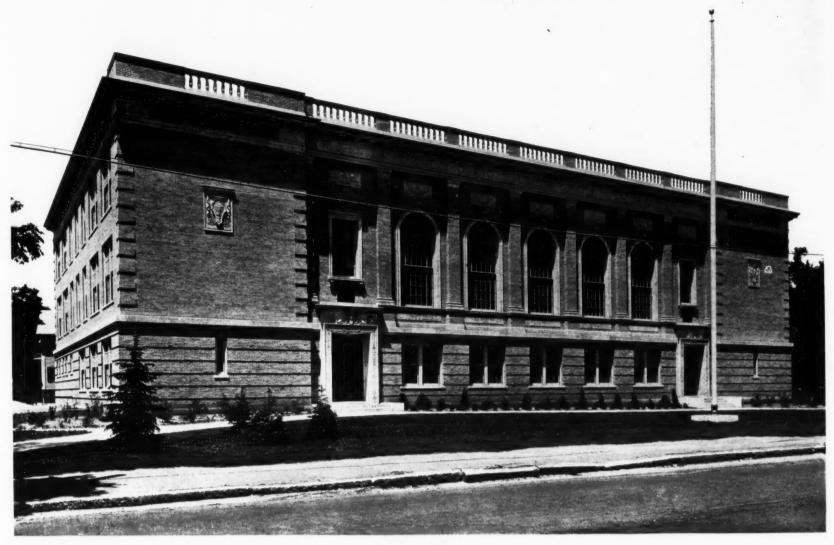


PIEDMONT PRIMARY SCHOOL, PIEDMONT, CALIF.

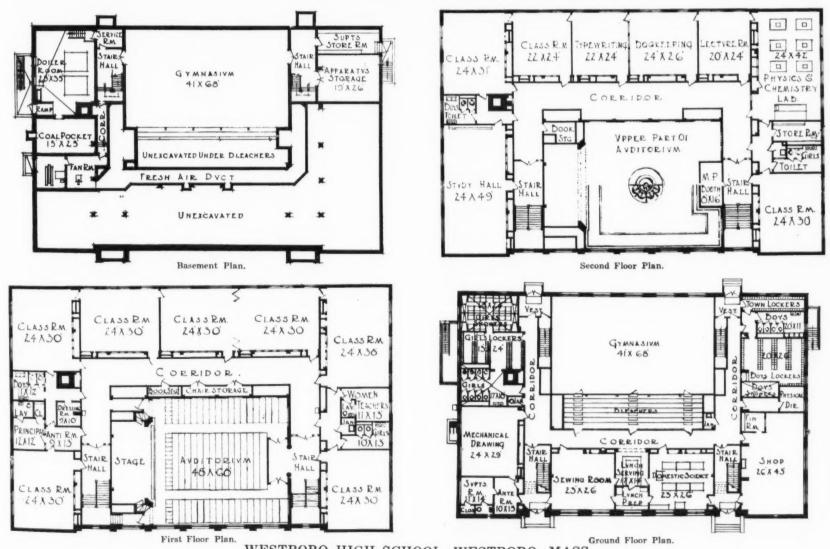
W. H. Weeks, Architect, San Francisco, Calif.



SOQUEL GRAMMAR SCHOOL, SOQUEL, CALIF. W. H. Weeks, Architect, San Francisco, Calif.



EXTERIOR VIEW.



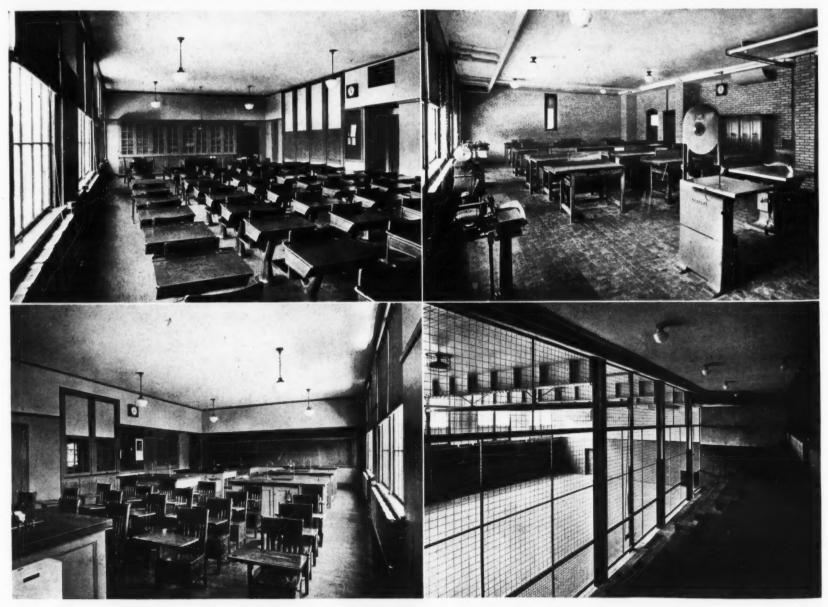
WESTBORO HIGH SCHOOL, WESTBORO, MASS.

Ritchie, Parsons & Taylor, Architects, Boston, Mass.



AUDITORIUM AT THE WESTBORO HIGH SCHOOL, WESTBORO, MASS.

Ritchie, Parsons, & Taylor, Architects, Boston, Mass.

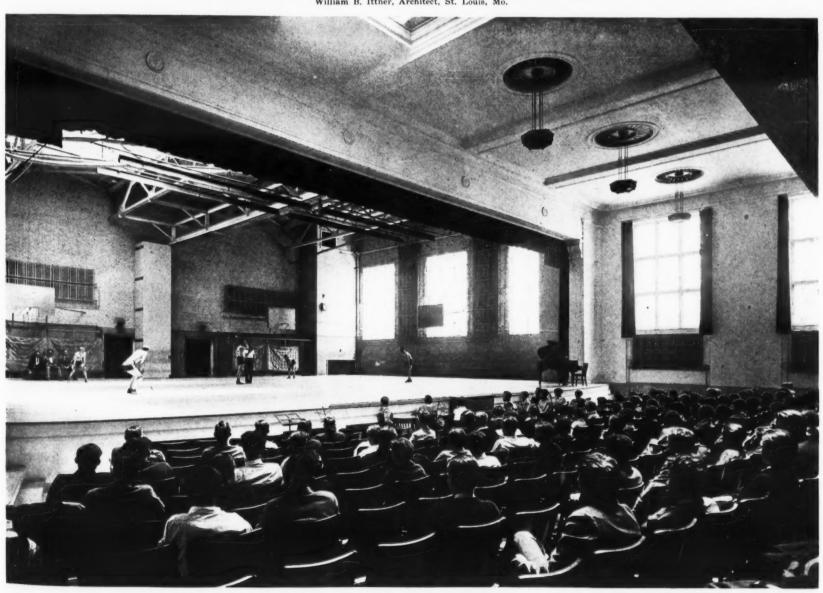


WESTBORO HIGH SCHOOL, WESTBORO, MASS.

TOP: Study Hall and Manual Training Shop. BOTTOM: Physics and Chemistry Laboratory, and Gymnasium and Bleacher Seats. (See Page 46.)

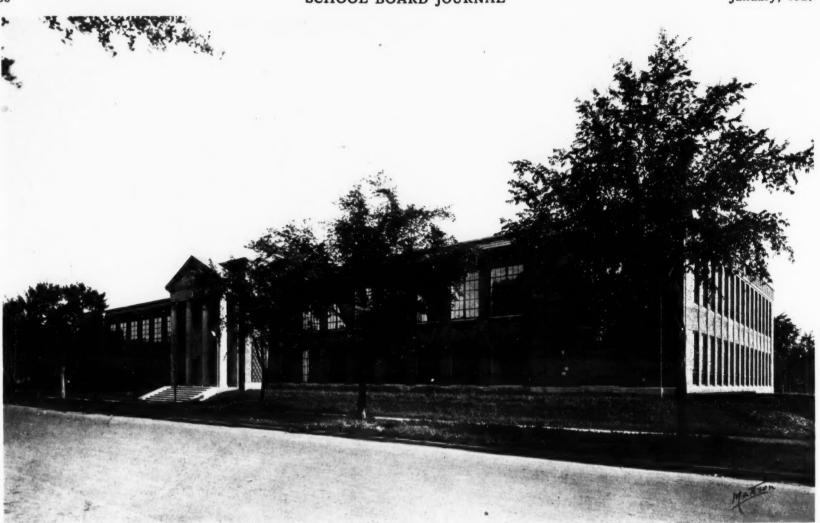


WOODROW WILSON JUNIOR-SENIOR HIGH SCHOOL, BECKLEY, W. VA. (Showing how the grade of the lot adds another floor to the building at the rear.)
William B. Ittner, Architect, St. Louis, Mo.



AUDITORIUM-STAGE-GYMNASIUM AT THE WOODROW WILSON JUNIOR-SENIOR HIGH SCHOOL, BECKLEY. W. VA. (The auditorium is arranged to correlate with the gymnasium and the cafeteria. Its seating capacity is 900.)

Wm. B. Ittner, Architect, St. Louis, Mo.



KEARNEY JUNIOR HIGH SCHOOL, KEARNEY, NEB.

Davis & Wilson, Architects, Lincoln, Neb.



MAIN ENTRANCE DETAIL.

KEARNEY JUNIOR HIGH SCHOOL BUILDING

Superintendent O. A. Wirsig

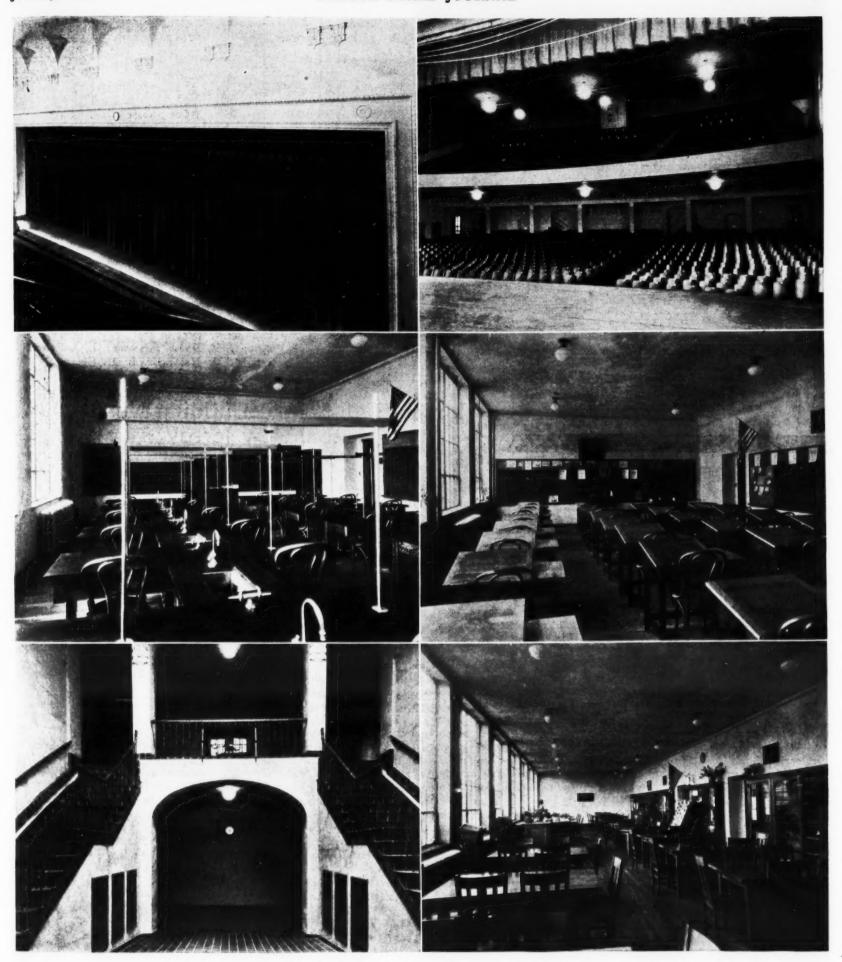
The junior high school building in Kearney, Nebraska, was constructed and equipped within a bond issue of \$250,000 plus accrued interest of \$8,000. The board of education was particularly fortunate in letting the contracts at an opportune time and on a rather good market with good competition. The per cubic foot cost was 19% cents which is the lowest on record in Nebraska. The building will accommodate comfortably 700 students.

This building is a two-story structure, 240 feet long by 121 feet deep, and so planned that the two end wings may be extended. The only departure from the straight lines of the light mottled face brick exterior, is in the main entrance of grey Bedford sandstone, which is decidedly Grecian in design.

Twenty classrooms occupy the major portion of the building. Each classroom has ample window space to provide full light efficiency. Steel window frames and sash of the fenestra type are used throughout. Each classroom has forced ventilation, a recessed teacher's locker, thermostatic control, and slate blackboard on three sides of the room, with ample corkboard for bulletins and exhibit material.

The floors and stairs are all of reinforced concrete construction covered in the corridors and stairs with mastic flooring while the classrooms have red oak flooring and the gymnasiums 11/4" maple flooring.

Built-in ventilated student lockers in the corridors provide ample safe places for the students' cloaks, books, and supplies. Eight drinking fountains of the Halsey-Taylor type are located on each floor—four at each end of the main corridor. Four large toilet rooms with white tile floors are well lighted and ventilated. There are two on each floor—one for boys and



KEARNEY JUNIOR HIGH SCHOOL, KEARNEY, NEB.

Davis & Wilson, Architects, Lincoln, Neb.

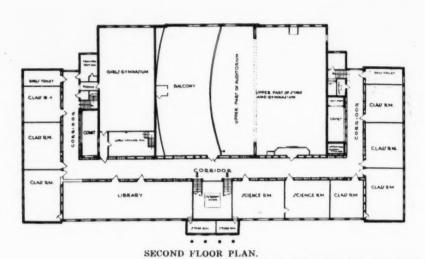
TOP: Proscenium and Stage and the Auditorium; CENTER: Science Room and Art Room; BOTTOM: Main Entrance Hallway and Stairs, and the Library.

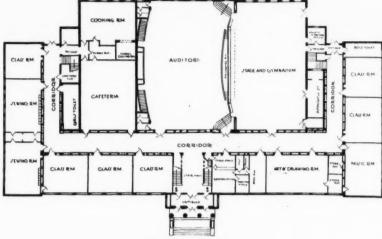
one for girls on opposite ends of the building.
On the first floor situated to the right of the main entrance and easily accessible to the public, is the general office and principal's office. Just off from these are the vault, private lavatory, book and store room, then in turn are several classrooms. To the left of the main entrance are a series of classrooms, two sewing rooms equipped with individual locker compartments, built-in ironing board, fitting booth and hot sockets for electric machines. The cooking

room is equipped with Sheldon desks facing one way and ample to accommodate thirty students. It is also equipped with locker compartments for aprons and toweling. A Crane automatic gas water heater provides plenty of hot water at all times. There are also two large gas oven ranges, one equipped with Loraine regulator. Off from the cooking room is the supply room for dishes, groceries, etc. Adjacent also is the lunchroom which will accommodate 150 students at a time. During other than lunch hours the

lunchroom is used for visual education.

The auditorium, seating 1,109 people, is equipped with opera chairs, a complete set of stage scenery, orchestra pit, and booth for picture machine. The curtain of the stage is dark blue velour, opening from the center to the sides. Two sets of scenery—one outdoor and one Cyclorama set, are provided in addition to the picture screen. The stage-gymnasium plan has been followed, hence by means of folding accordian doors, the stage of the auditorium may





FIRST FLOOR PLAN

KEARNEY JUNIOR HIGH SCHOOL, KEARNEY, NEB. Davis & Wilson, Architects, Lincoln, Neb.

be shut off and used as a boys' gymnasium which gives a playing field of 79 feet by 45 feet. By this arrangement double use is made of the space and it accommodates equally well, basket ball games for spectators, operettas, pageants, or other programs which include large groups of children. To the rear of the stage-gym are suitable storage rooms for scenery and apparatus, also boys' shower and dressing rooms.

On the second floor are the regular classrooms, science rooms, balcony of the auditorium, and library. The library is ideally located, being on the second floor, and with north light. It is equipped with tables, shelving, magazine racks and librarian's desk as can be seen from the photograph. It will accommodate 100 students at a time. The girls' gymnasium on the second floor is well situated for health work. It is 64 feet by 36 feet, with separate dressing room and shower room with eight showers and 16 semi-private dressing stalls separated with curtain and slate partitions.

The heating plant is located to the rear of the building in conjunction with that of the senior high school. It consists of two large Kewanee boilers of the latest design. Rapid and positive circulation of steam through the radiators is secured by use of an automatic vacuum return pump.

The ventilating "experts" do not agree in their opinions on the best method of ventilation. This building is adaptable to any theory of ventilation. Fresh air can be brought in from outdoors and circulated through the building, or the cutdoor openings may be closed and the same air recirculated throughout the building. thus keeping up a gentle movement of air. There is no expensive air washing machinery, but arrangements have been made to humidify the air by water pipes with spray nozzles attached projecting into the air tunnels. They can easily be turned on or off as desired. The fan system not only aids in ventilation but it also helps in heating the building and equalizing the tem-There are perature, thus economizing on fuel. no radiators whatever in the auditorium, but it can be heated in ten minutes by opening the air ducts leading into it. Separate fans and ventilating ducts are provided in shower rooms and cooking rooms so that odors are not circulated over the building.

An inter-building telephone system with telephones at distant points saves many steps and much time of principal and teachers.

The building is equipped with a complete program clock and fire alarm system. In the main corridors, auditorium, and library are secondary clocks. These are all electrically operated and controlled.

This building has been in use since September and is proving very satisfactory in its adaptability to the modern program of education for junior high school students.

Total cubic contents, cu. ft1,123,677
Contract Amounts—
General \$168,983
Heating and Plumbing 40,230
Electric Wiring 4,975
Hardware 2,100
Total Contract Amount \$216,288
Cost per cubic foot 192/100

The building was erected from plans prepared by Ellery Davis, architect, Lincoln, Nebr. The members of the board under whose direction the building was erected are: J. S. Donnell, president; G. E. Haase, secretary; G. O. Fairchild; Mrs. J. H. Hale; Dr. L. M. Stearns; C. A. Bessie.

Junior High School Building No. 3 Trenton, New Jersey

Gabrielle Evans Sibley

The development during the past few years, of the educational opportunities in the city of Trenton, deflects in no uncertain terms the vision and the spirit of its citizenry.

Led by a superintendent of schools and a board of education with common ideals and purposes, backed by a mayor and a board of school estimate who readily cooperated in the promotion of a comprehensive school building program as an object of primary importance, public opinion became rapidly enlightened as the shortcomings and deficiencies of the school housing situation were presented.

Following a school building survey and an exhaustive study of all phases of the educational system and its problems, a school for colored children was decided upon as the first step in the building program. This very interesting building will be presented in another issue of this magazine.

Junior high school building No. 3, illustrated on pages 68 and 69, represents the second step in the effort to meet the pressing need for increased school facilities, and is beautifully located on West State Street. Looking across to athletic field and Cadwalader Park, glimpsing through the trees to the rear, the historic Delaware, and in the heart of a choice residential district, it stands ministering alike to the artistic, the aesthetic and the practical needs of all, and symbolizing in a quiet, dignified manner, the high ideals of the community.

The historic background of Trenton inspired the use of the Colonial style in the design, a style which dates from the earliest days of American history. At the corner of the principal approach to the building from State Street, hangs an artistic sign which bears this inscription:

Route of
Route of
General Sullivan's
March
to Trenton
December 26th, 1776

As we read this, we remember that Trenton was one of the important battlegrounds of the Revolutionary War. Perhaps none of the struggles for liberty and independence has stirred our imagination more than the one that took place in Trenton. Today this free institution of learning overlooks one of their lines of

march, and stands as a fitting monument to their bravery and sacrifice. Its beauty, its strength, and its wide usefulness, reflects the character of these founders and defenders of our country, and will be again reflected in the lives of the boys and girls who will foregather here.

An interesting link in the chain of history is formed by the presence of a world war memorial within the school grounds, near the main approach. This memorial, which is in the form of a fountain, was presented to the city of Trenton by Mrs. Elliot F. Shepard, in memory of her brother, Russell Terradell, who lost his life in the world war. It was the choice of the city to place it here.

The site was sufficiently generous to permit placing the building far from the noise of the street. The adjacent property is fixed or controlled so that the character of the surroundings can never become less desirable, and the setting has been made beautiful by the land-scape architect. The building is a little too new, however, and the planting too young to express the effect that time will bring about.

Red brick, rich in texture and coloring, and cut cast stone, are the mediums through which the character of the old brick and marble buildings has been secured, and the central tower, and the entrance porticos on each wing, are all reminiscent of the simple, dignified, early Colonial work, no detail having been neglected which might contribute to the harmony of the completed design.

No one thing, perhaps, promotes understanding and appreciation on the part of the public, more than use of the schools for civic purposes.

Visiting the auditorium unit, with its beauty, its dignity, its completeness; attending a banquet in the combination cafeteria and study hall; sitting in the spectators' gallery of the great double gymnasium; and glimpsing on these occasions the shops, the swimming pool, the music room, the science department, or the products of the various branches of household arts, can have only one effect. It will develop civic consciousness, it will stimulate pride and it will provoke enthusiasm and cooperation on the part of those on whose good will and understanding the public school must depend for its maintenance.

The Administration of School Building Programs¹

IV.—The Relation of Type of Administrative Organization to Cost of Construction Osman R. Hull, Ph.D., Associate Professor of Education, University of Southern California, Los Angeles

The cost of construction of school buildings is commonly expressed in terms of cost per cubic foot, cost per room, cost per pupil, and cost per square foot. It will be the purpose of this article to discuss the significance of these units of cost in the administration of a school building program, and their use as a measure of the cost of school building construction.

Some measure of the cost of construction of a school building is needed to enable a board of education to anticipate the total cost of a proposed building, in order that they may make adequate provisions for financing the project. Again, it is necessary for the architect to have a measure of the unit cost of construction in order to effect the economies necessary to bring the building within a reasonable range of the cost of other similar buildings of the city or of neighboring cities. A reliable measure of the unit cost of construction will enable the architect to make comparisons between the cost of construction of buildings of varying quality of material, type of construction or general room schedule and organization, and other variations that might affect either the use of the building or its cost of construction.

Buildings of the same class of construction. built of the same grade of material, and under the same market conditions for materials and labor in a city will vary in cost due to differences in planning and variations between cities due to local price areas that vary with the building activity and the demand for labor and materials. There are differences between states for the same reason. A comparison of the costs of construction in one city with the costs of construction in another must take into account these factors, and too much reliability should not be placed in comparative costs between two cities unless the factors influencing those costs are known. However, the influence of local price fluctuations is largely overcome when the comparisons are between sufficiently large groups of cities scattered over wide areas in a number of states, and with cost data covering a period of years. Under these conditions differences in cost of construction between groups of cities classified according to the manner of administering their school building program may reasonably be attributed to the difference in management of the several types of administrative organization.

Cost Per Cubic Foot as a Measure of Cost of School Construction

Cost per cubic foot is used more frequently than any other measure of construction costs by both architects and business managers in determining the probable cost of a building being planned, and in making comparisons with the cost of similar buildings. Although the personal factor of the one calculating the cubical contents of a building has a considerable influence on the result, the rules for calculating cubage are quite definite and general in their use by architects.2

All comparisons of cubic foot costs should be made with the limitations clearly in mind as to the value of the measure in determining the worth of a building. Low cubic foot cost figures on a building may be due to a high total cubage as the result of large waste areas, and of high story elevations with large cubage per room. Also undesirable sacrifices may be made in the amount of trim, quality of wood trim and doors, built-in features, and other elements

that would not change the class of construction but would materially influence the cost. On the other hand, an architect who has carefully planned a building with little or no waste space, with a resulting low total cubage, will have a higher per cubic foot cost. The latter building, however, because of the low total cubage, may have a lower total cost and be more economical of the two.

In this study, however, we have under consideration only buildings of fireproof construction, or those that ordinarily come under class or class "B" construction. Practically none of these buildings are strictly class "A", and while perhaps some are low class "B", no class "C" buildings are included. The class of construction used in one group of cities will therefore be quite comparable to that used by another group of cities, and for the purpose of this study may be taken as essentially the same. Cost Per Room as a Measure of School Building

Cost of Construction Cost per room was inaugurated as a measure when school buildings were mere nests of classrooms without auditorium, gymnasium, shops, or laboratories, and in many instances carries today the name of per classroom cost. There is room for great variation in the determination of the number of room units to be applied to the total cost of the building in determining the cost per room. Because of the difficulty of expressing an auditorium, gymnasium, or other special room accurately in terms of classroom units, this method of stating unit costs of construction is perhaps the most unreliable of the measures used.

In buildings of the same quality and class of construction, a low cost per room may be the result of a large number of classrooms without auxiliary rooms and facilities: or an auditorium and special rooms may be present, but rated too liberally in terms of classroom units, and consequently lower the cost per room. On the other hand a high cost per room may indicate a desirable educational situation through the presence of a gymnasium, auditorium, liberal auxiliary room provisions and additions that add materially to the total cost of the building and are not rateable as rooms in determining the unit cost. However, a high per room cost may indicate extravagant planning and un-economical management. It is evident, therefore, that the cost per room is subject to the influence of the architectural and administrative service provided under the several types of administrative organization.

Cost Per Pupil as a Measure of School Building
Cost of Construction
Cost per pupil depends on the normal building capacity, which is usually determined by the seating capacity of the classrooms. In buildings of the same class of construction and quality of materials, variations occur in the cost per pupil accommodated, according to the amount of money spent for gymnasium, auditorium, and other non-classroom units that do not seat pupils at regular intervals. In fact it might be assumed that the class of construction and expensiveness per cubic foot being equal, the school building showing the highest cost per pupil has the more liberal provisions per pupil in terms of special and auxiliary rooms and added educational facilities. On the other hand, a high cost per pupil that is merely the result of a high cubic foot cost of construction may indicate faulty planning or poor business management.

Some attempt has been made, however, to standardize the rating of a building in terms

of cubage and pupil capacity by the recommendations of the combined committees of the National Association of Public School Business Officials, the National Education Association, and the American Institute of Architects, appointed to prepare and approve identical reports on the standardization of school building measurements. These reports have been quite generally accepted as authoritative, and are quite generally used in practice. The standards approved by these committees for the rating of a building in terms of cubage and pupil capacity are as follows:

"To determine the educational utility of the building, obtain the cost per pupil.
"To determine the construction cost of the building, obtain the cost per cubic foot.

"To determine the construction cost of the building, obtain the cost per cubic foot.

"The divisor to determine the cost per pupil shall be determined by the number of pupils normally accommodated in rooms designated for classes only.

"In arriving at the number of pupils, special rooms are to be figured at the actual number of pupils accommodated for one class period only.

"Auditorium or assembly rooms are to be ignored, but the gynaslum may be figured for one or two classes, as the accommodation may provide. No gymnasium, however, shall be accredited with two classes, if below forty by seventy feet in size.

Cost Per Cubic Foot.

"To determine the cubage of a school building, multiply the area of the outside of the building from six inches below the general basement floor to the mean height of the roof. Parapet walls, stacks and other projections beyond the mean height of the roof, as well as balconies and porches not contributing to actual usable floor of the building, are to be ignored.

"Where portions of the building are built at different heights, each portion is to be taken as an individual unit and the rule as above applied." "

Cost per cubic foot and cost per pupil may,

Cost per cubic foot and cost per pupil may, therefore, be considered as the two most significant measures of cost of construction in common use.

Tables and Calculations on Unit Costs of Construction

The following tables (Nos. 27, 34, 41) are compiled from the raw scores given in tables 60 to 74 (not included in this article) which show the cost of construction of buildings erected in the years 1913 to 1923 inclusive. These cost data are reduced to the common basis of the 1913 cost of construction by application of the building cost index for each year to the costs of buildings constructed in that year. This index is based on the wholesale cost of building materials and the union scale of wages for the years under consideration. Labor and materials each constituting about 50 per cent of the cost of construction, the mean of the two costs will very closely represent the trend in building costs, and the mean of the index of the wholesale price of building materials, and the index of the union scale of wages in the building trades for any one year may be taken as the building cost index for that year.

The following figures, except those for 1923, are from "Building Permits in the Principal Cities of the United States," Bulletin Number 347, U. S. Department of Labor, Table 4, p. 7. The figures for 1923 were obtained by the Research Division of the N.E.A. on special request from the Department of Labor.

TABLE 8.—Indices of Increase in Building Costs 1912-1923

	Wholesale Prices		Building
	of Building	of Wages in	Cost
Year	Materials	Building Trades	Index*
1913	100	100	100
1914	92	102	97
1915	94	103	99
1916	120	106	113
1917	157	113	135
1918	172	126	149
1919	201	145	173
1920	264	197	231
1921	165	200	183
1922	168	187	178
1923	189	207	198

*The building cost index is by the writer.

³Milligan, R. M., "The Proper Method of Figuring Building Costs and Capacities," Proceedings National Association of Public School Business Officials, 1924.

¹Articles Nos. 1, 2, and 3 of this series appeared in the June, July, and October issues of the Journal, ²See paragraph near end of this article for method used in calculating cubage.

It is the purpose of the following tables to show under each of the several types of building administration the mean unit cost of construction on the 1913 basis of costs, with the standard deviation and the probable error of the mean. A distribution of costs and comparison of types is given in table 27 for cubic foot costs, in table 34 for pupil costs, and in table 41 for room costs.

Since the tables are given entirely in terms of 1913 costs, the reader may desire to have this data expressed in terms of 1923 costs. Reference to table 8 of this article shows that the building cost index for 1923 is 198, and the cost for 1923 may therefore be obtained by multiplying the cost for 1913 by 1.98.

			TÀBI	E 27			
Distribution	of	Cubic	Foot	Costs	of	School	Buildings
Clas	sif	ied by	Type	s of	Org	anizatio	n

			05 01	TYPE		
Cubic Foot Costs		I No. of	II	III	IV No of	V No. of
1913 Basis	Bldgg	Bldgs	Bldge	Bidge	Bldgg	Bldge
\$.39		2	muga.	Didgs.		Diugo.
.38	9	ĩ			'n	
.37	ĩ	î				
36			• •			
.35	63					* *
.34	3	3				
	1	9				
					1	
.32	1	12		0. 0	1	* *
.31	6	5			1	
.30	1	1	0.0	0.0		
.29	1	1			• •	
.28	3	1			2	
.27	5	4		0.0	1	
.26	12	10		1	1	
.25	14	11	1		23	
.24	20	14	1	1	4	
. 23	18	14		1	3	
.22	38	23	2		13	
.21	27	22	2	2	1	
.20	46	21	222	2	8	13
.19	42	20		6	16	
.18	42	22	3	2 2 6 5	12	
.17	47	33	3	7	4	
.16	46	93		7	7	9
.15	69	37	• • • • • • • • • • • • • • • • • • • •	21	9	4
14	48	9.4	ĩ	1313	1	
.13	30	13	î	15	1	
.11	11	3		4	å	
.12	24	**	1	-	6	
.10	3			.,	49	
.09	5			**		
	4.9			.,	~	
.08	* *			* **		
.07	3	004	**	3	404	90
Total Bldgs.	573	321	18	111	101	that the
	.182 \$			\$.146	\$.190	\$.183
	.056	.054	.123	.033	.047	.027
P.E. (Mean)	.002	.002	.019	.001	.003	.004

*Calculated from the raw score data in tables 60 to 64. Showing cubic foot costs of construction for the years 1913 to 1923, inclusive, reduced to the 1913 cost basis for purposes of comparison.

Summary

1. The rank distribution of types of administrative organization on the basis of cost of construction per cubic foot, per pupil and per room as shown in summary tables No. 28, 35, and 42, is as follows:

Mean Cost of Construction, 1913 Basis

		Cubic		Per		Per
Rank	Type	Foot	Type	Pupil	Type	Room
High	I	\$.192	v	\$235	IV	\$8998
Above Median	II	.190	IV	216	I	5977
Median	IV	.190	1	207	V	5891
Below Median	v	.183	11	195	11	5729
Low	III	.146	III	150	III	5586

Cost per cubic foot. A small yet significant difference of about four cents per cubic foot is shown between Type V and Type III. Type III is also significantly lower than the median cost of \$0.19 per cubic foot, being about \$0.04 per cubic foot or 23 per cent lower than the median cost.

Cost per pupil. The only significant difference appearing between consecutive types is the difference between Type IV and V of \$19 per pupil cost of construction. Significant differences from the median cost per pupil are shown by Types V and III, type V being \$28 or 14 per cent higher than the median cost of \$207 per pupil for type I, and type III being \$57 per pupil or 28 per cent lower than the median cost.

Cost per room. The cost per room for Type IV is significantly higher than the cost for Type I, and is \$3,107 or 53 per cent higher than the median cost per room of \$5,891 for Type V. Other differences between consecutive types and the median are insignificant.

2. Organization Type I, with the architect fully responsible, shows no significant difference from the median cost of construction in the three divisions of cost per cubic foot, cost per pupil and cost per room.

TABLE 41

Distribution of Room Costs of School Buildings Classified by Types of Organization
TYPE
Cost Per Total I II III IV V

TABLE 34

Distribution of Pupil Costs of School II
Classified by Types of Organization
TYPE
Cost Per Total I II III IV

	Cost Per	Total	1	11	III	IV	v
	Room	No. of	No. of	No. of	No. of	No. of	No. of
	1913 Basis	Bldgs.	Bldgs.	Bldgs.	Bldgs.	Bldgs.	Bldgs.
	\$16,000	2			1	1	4.1
	15,500	2				2	
	15,000	1			1		
	14,500						
	14,000	1	1				
	13,500	3	9			1	
	13,000		222235			3	
	12,500	5	5	1		U	
	12,000	6	5			4	
	11.500	9	5		i	5	
	11,000	17	5		5	10	
	10,500	15	5		5	8	
	10,000	23	6		5	15	
	9,500	22	5		-	17	
		26	3				
	9,000	20	7	0 0	0 0	19	
	8,500	23			*:	16	
	8,000	30	18	* :	1	11	
	7,500	33	20	1	4	8	
	7,000	25	13	1	4	7	
	6,500	33	17	3	7	5	1
	6,000	47	31	5	7	4	
	5,500	47	28	5	8	6	
	5,000	39	27		10	2	
	4,500	37	17	4	13	3	
	4.000	39	23		16		
	3,500	44	29	2	13		
	3,000	25	18	1	4	2	
	2,500	13	10		2	1	
	2,000	5	5				
r	otal Bldgs.		303	25	98	150	1
1	lean \$	6690 \$	5977		\$3586	\$8998	\$6556
S.	D	2847	2442	1827	2452	2704	4.1000
1	E. (Mean		95	262	165	149	
	, is, (Mean	, 00	00	#U#	100	7.40	

*Calculated from the raw score data in tables 70 to 74. Showing room costs of construction for the years 1913 to 1923, inclusive, reduced to the 1913 cost basis for purposes of comparison.

Organization Type II, or the supervising architect plan, shows no significant difference from the median cost of construction.

4. Organization Type III, or the city department using outside architects, is significantly lower than all other types in cost per cubic foot, significantly lower than the median cost per pupil, and lower than all other types in cost per room.

5. Organization Type IV, or the complete city building department plan, shows no significant difference from the mean cost per cubic Buildings

				,	TYPE		
Co	st Per	Total	1	11	III	IV	v
	Pupil		No. of		No. of	No. of	No. of
	Basis	Bldgs.	Bldgs.	Bldgs.	Bldgs.	Bldgs	Bldgs.
	\$726	1	D. G.B.	arreg or	arago.	1	Trug is
	620	î.			1		• •
	0=0	•			•	• •	• •
	540	1	1				
	520	1	î				
	500	•	•				
	480						
	460	3					
	440	î	-				
		4					
	420	2 2	* *		1	1	
	400	2	2 2 7			* :	
	380	4	2		1	1	
	360	11	7	1	1	2	
	340	8	4		2	2 2 7	
	320	13	6				
	300	19	11		2	6	
	280	24	8	1	2 2 1	12	1
	260	41	21	1	1	18	
	240	27	15		1	11	
	220	57	16	1	5	33	2
	200	47	17	ī	6	99	ī
	180	38	17		4	22 17	
	160	47	29		8	10	
	140	58	28		11	17	
	120	36	14	4	18	4.4	
			17			4	
	100	47	14		28	2	
	80	24	4	2	14	4	
	60		* *	* *	***	2	
Total	Bldgs.	515	223	9	106	173	4
*Mean		\$198.	\$207.	\$195 .	\$150.	\$215.	\$235.
S. D.		90.3	82.3	88.6	88.4	92.4	
P. E.	(Mean)	2.68	3.72	19.9	5.80	4.74	
P. E.	(Mean)	2.68	3.72	19.9	5.80	4.74	

*Calculated from the raw score data in tables 65 to 69. Showing pupil costs of construction for the years 1913 to 1923, inclusive, reduced to the 1913 cost basis for purposes of comparison.

foot, or the mean cost per pupil, but is significantly higher than all other types in cost per room.

6. Organization Type V, or the associated architects plan, shows no significant difference from the mean cost per cubic foot, or the mean cost per room, but is significantly higher than all other types in cost of construction per pupil.

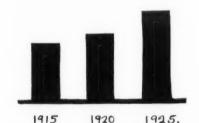
7. The only type of organization showing an appreciable difference from the median costs of construction is Type III. Construction costs are definitely lower under this plan of administration of school building programs.

Graphic Presentation of Building Needs

Eugene Jerel Irwin, Maxwell, Calif.

The rural school as well as the city system finds it necessary to conduct an active publicity campaign for its new school buildings. The old argument of figures and idealistic values no longer holds the favorable attention of the public. Thus, the small city finds the need for graphic presentation of building needs in a form that can be easily understood by any voter to overcome the opposition of those who have asssumed the responsibility of holding down the tax rate. Such graphic presentation can, if the need really exists, convince such people and remove such public opposition. Figures may lie, in the opinion of some, but a true and honest graph favorably strikes the optic nerve of the most reluctant watch dog of the city treasury.

Such graphs and charts need not be elaborate but they should cover the points most frequently at issue. They should not tear down; they should explain. The older surveys followed the idea of tearing down; that is why school boards and school leaders feared them. But the years have brought a welcomed change so that now the man who surveys does not photograph the back alleys of the school, the toilets, the rear stairs, and the garbage corner, GROWTH OF POPULATION.

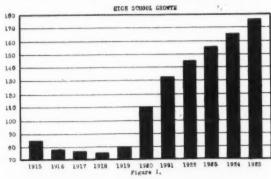


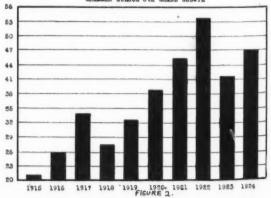
SIMPLEST BAR GRAPH ILLUSTRATING POPULATION GROWTH.

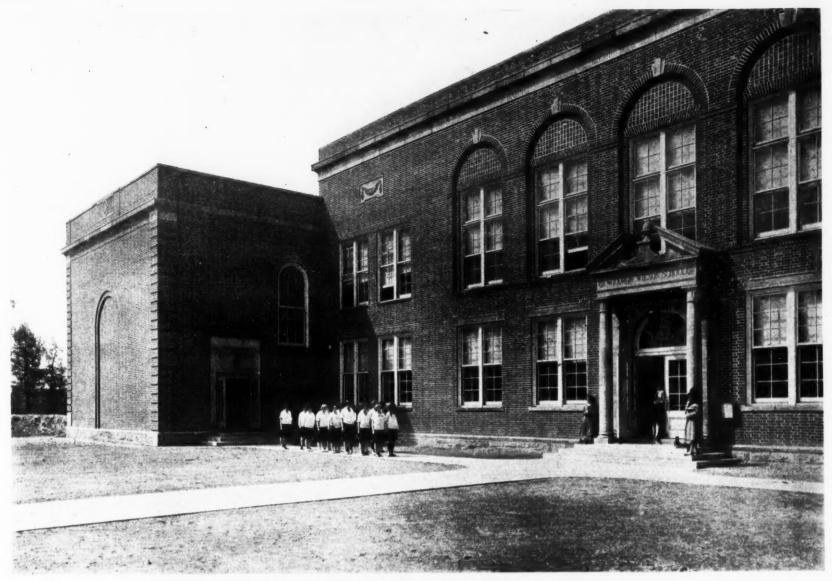
nor does he bring fear to the heart of the administrator. None of these.

He now carefully estimates the growth of the system and its resources, the amount of money that will be necessary to carry out an intelligent program of the future—not for one year, but for eight to ten years. This is a constructive attitude, the merits of which all recognize. For (Continued on Page 147)

GRAMMAR SCHOOL 8th GRADE GROWTH







WOODROW WILSON JUNIOR-SENIOR HIGH SCHOOL, BECKLEY, W. VA.
William B. Ittner, Architect, St. Louis, Mo.
(Detail of exterior, showing the main and one of the side entrances. It must be borne in mind that good architecture is dependent on mobility of mass, fine relationship of parts, restraint, and purity of line.)

A Junior-Senior High School at Pre-War Cost

Geo. H. Colebank, Superintendent of Schools, Beckley, W. Va.

There has been much criticism against school authorities on account of costly high schools. The attacks in some instances may be justified, particularly where unnecessarily elaborate buildings have prevented communities from securing adequate accommodations for the elementary school enrollments.

Cost analyses of high schools erected since 1918 reveal the fact that high school costs for several cities have approximated \$1,000 per pupil. When it is revealed, also, that these all too-expensive high schools are not offering any greater educational facilities than schools costing \$500 per pupil or less, that they manifest no superior architectural merit, then there is cause for complaint. Two pronounced causes for the high costs stand out: (1) Lack of skill in planning for specific educational purposes; (2) an all too-elaborate use of expensive building materials, within and without.

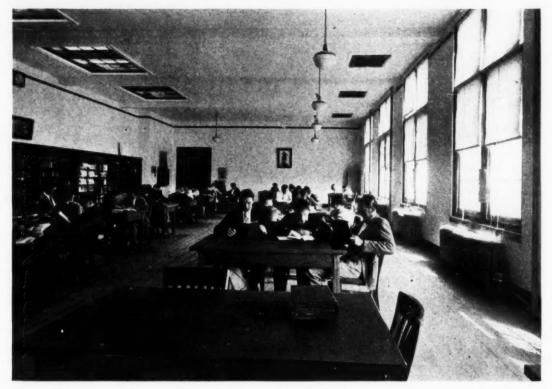
On these last two matters school boards are frequently misled by inexperienced school architects who mistake an elaborate piece of architectural design for an efficient plan and good architecture. Good architecture, like all the related arts, depends primarily on a skilful handling of masses and detail, on simplicity, restraint, purity of line, as well as on a careful selection of honest and substantial building material. Wherein lies the beauty of the Washington Monument? In its fine proportions, purity of line and in its noble and majestic simplicity.

West Virginia, completed November, 1925, stands as a notable example of sane economy in

The Junior-Senior high school at Beckley, plan, of good architectural design, and of substantial construction. The cost of the building without equipment is \$285,244. Its per pupil



COMMERCIAL ROOMS AT THE WOODROW WILSON JUNIOR-SENIOR HIGH SCHOOL, BECKLEY, W. VA. William B. Ittner, Architect, St. Louis, Mo.



LIBRARY-STUDY AT THE WOODROW WILSON JUNIOR-SENIOR HIGH SCHOOL. BECKLEY, W. VA. William B. Ittner, Architect, St. Louis, Mo.

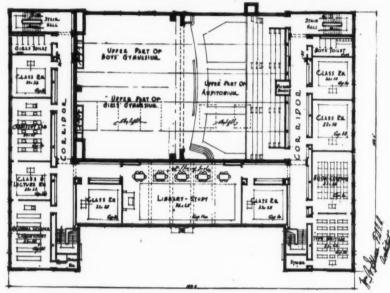
9. An Administration Group consisting of a general office, and an office for the superintendent and principal, with storage vault and private toilet.

The architectural merits of the Beckley high school do not depend on excessive ornament for there is none. Instead, a bold handling of related masses and an occasional emphasis on important detail give it character and a rugged beauty. The principal building material used is common brick, rich and uneven in color, the kind that will weather into a dark mosaic.

If nothing is lacking in this school educationally, architecturally or mechanically, what then are the reasons for its low per capita cost?

In the first place, the junior and senior high schools are combined since Beckley is a small city. In the second place, the component parts of the building are planned for maximum, as well as multiple use. Its materials are fireresistive and durable, as well as appropriate for hard use, which automatically reduced its per cubic foot cost.

What Beckley has accomplished as to cost reduction, any American city, large or small, can accomplish. Furthermore, it is the kind (Concluded on Page 172)



SECOND FLOOR PLAN

AUDITOLIUR

cost is \$310. That it contains all the required facilities for the enriched educational program is revealed by the following recapitulation of the educational facilities:

1. A total of 13 classrooms. Five are 22'x28' for 35 pupils each and eight are 21'x22' for 30 students each. All are unilaterally lighted and arranged for natural cross ventilation.

2. A study-library room 34'x65', for 160 students at study desks and library tables.

3. An Auditorium with a seating capacity of 900 students and planned with a stage-gymnasium.

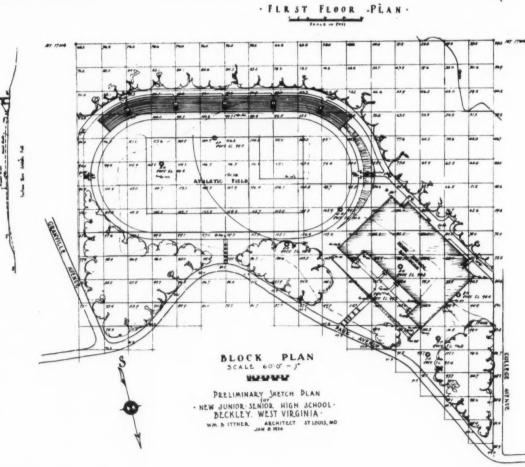
4. A Gymnasium, 57'x80', arranged for division by folding partition. Lockers, showers, and rest rooms for both boys and girls and rooms for visiting teams.

5. Two Domestic Art Rooms. The cooking room has a model dining room adjacent; the sewing room has a fitting room adjacent. Both are equipped with store rooms.

6. Two Science Laboratories arranged in correlation with a sanitation and hygiene room.

7. A Commercial Group of two rooms.

8. Three Shops-one for woodwork, one for metal work, and one for mechanical drawing are provided upon the ground floor.



The Pros and Cons of School Ventilation

From a Ventilating Engineer's Viewpoint

Harold L. Alt, Technical Editor of the Heating and Ventilating Magazine

The present discussions regarding school ventilation in general, and methods to be used in particular, seem to approach the ridiculous to those who have no technical education in this line. It is to be regretted these constitute a majority of the general public, as well as a large proportion of school board membership. The writer's contact with members of school boards has convinced him that such members are good and efficient representative citizens, men who are solid and substantial in their own line and who possess sufficient intelligence to

grasp any ordinary subject.

Such men are called upon daily to settle and determine (among a multitude of other matters) the question of ventilation for the new school buildings exected. For this reason, the writer has attempted to produce a generally descriptive paper on all the modern recognized systems of school ventilation, and to so describe and explain their operation that even the most uninitiated will be able to gain a fair working knowledge of the various types, as well as a synopsis of the numerous arguments advanced by the supporters of each method. If this object is accomplished, even in a small degree, this paper will have justified its existence.

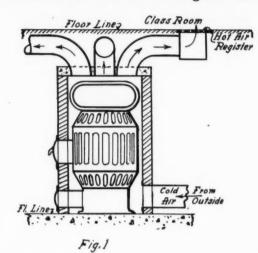
The Definition of Ventilation

Ventilation for the purposes of this article may be defined, perhaps, as the process of producing the most healthful condition possible in a schoolroom as far as air conditioning is concerned. Ventilation, however, is related to other features with an interrelated and unbreakable connection. First, it is most closely related to temperature, otherwise the heating of the room; second, it is related to the matter of humidity in a most important manner; third, it is linked with the subject of cleanliness, both in the schoolroom and in the neighborhood surrounding the school building; fourth, it is affected by the matter of odors produced in the schoolroom itself, or in adjacent rooms in the schools such as the lunchroom, kitchen, laboratory, and toilet rooms.

It is not so intricate as it sounds, yet many experimenters have succeeded in raising more or less of a smoke screen and producing greater obscurity by running off into farther convolutions and advocating perfuming the air, using ozone, the spraying of disinfectants.

The Nature of Air Conditions
The reader should realize at this stage of the discussion that one of the chief difficulties encountered in ventilating work is the lack of a basic knowledge of what is the proper condition of the air. For this ignorance heating and ventilating engineers are not to blame; it is distinctly a medical subject and with all the advances made in medical science including the cures and the marvelous repair work on shattered bodies made during and after the war, the medical profession is not in position today to say positively what is the proper condition of air to secure best results on the human being, nor can they back up any such assertionshould they be so inclined to make it-by any reasonable experimental proof. In fact, the whole subject has been shamefully ignored. Surely the lives of our school children, and their study conditions day after day, are worthy of some effort and study.

Establishing Ventilating Standards Owing to this difficulty the heating and ventilating engineer has had to establish, as far as he has been able, his own standards. About nine years ago, the writer advised members of school boards, in an article published in the American School Board Journal,1 to use a basis



of 30 cubic feet of fresh air-per-minute-per-In view of various experiments since made, this figure is, perhaps, more actually required. It was based, however, on the standard ventilating practice of that time and the error, if any, was on the safe side, and even if not actually required to avoid bad effects on the pupils, it certainly did them no injury.

One of the greatest defects in making tests of air quantity on pupils actually attending school, for the purpose of determining the minimum amount of air is the fact that the pupils are subjected to the effects of this air a rela-

tively short period of time.

The time actually spent by the average pupil in the school building seldom exceeds five or six hours out of the 24, and the time in the classroom must naturally be even less, so under normal conditions the pupil is only subject to school ventilation for 25 per cent of his time. How can good physical condition, or mental tests, indicate or be controlled, by the conditions existing during 25 per cent of the time when other conditions constituting an overwhelming 75 per cent are not even questioned? The quantity and quality of the air which should be supplied to the schoolroom is a medical one and the engineer cannot be blamed for the confusion existing today on the subject.

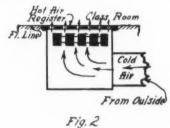
When some recognized medical authority comes forward with dependable requirements as to what factors, or combination of factors, produce a breathing air most conducive to health and gives the best mental stimulation for study, it may be felt that the greatest step in school ventilation has been taken.

In the meantime, heating and ventilating engineers, together with air conditioning experts have given much time and thought to say nothing of expense, to experiments regarding air itself and its properties, so that when the information does become available they will be in position to step in and produce the conditions desired:

A Careful Study on Ventilation

Possibly the nearest approach to any real information along this line has been made by the New York State Commission on Ventilation which carried out a long series of tests, some

Oct. 1917, p. 25

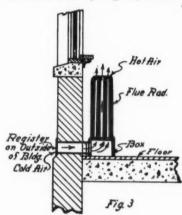


in actual schoolrooms (such as Public School 51 in New York City) but unfortunately, the appropriation to carry on this work was not sufficient at the time for the commission to complete the tests in conclusive form. It is only recently that additional funds have been secured to continue the much needed study of this subject.

In fact, the report of this commission shows ing the results of their tests, so far as carried out, has been the unwitting cause, or at least has served a basis of argument, for those trying to replace the older standards. The report, if read carefully, is very conservative and does not attempt to state any facts conclusively or finally, yet it has been cited by more than a few as proof conclusive of their arguments.

The Evolution of Ventilating Systems To get down to concrete cases: schools were inaugurated with only heat to warm the rooms to a comfortable degree. It was soon found, however, that this was by no means sufficient. In a very short time the rooms grew close, a stuffy feeling was noticed, disagreeable odors accumulated, and a general feeling of lassitude was experienced.

The natural solution of the difficulty seemed to be the admission of fresh air to the rooms in such a way as to avoid cold draughts and avoid inconvenience to the inmates. Mechanical minds interested in this phase who sought to overcome the difficulty soon evolved several schemes such as the warm air furnace, Fig. 1; the indirect heater, Fig. 2; and later, when

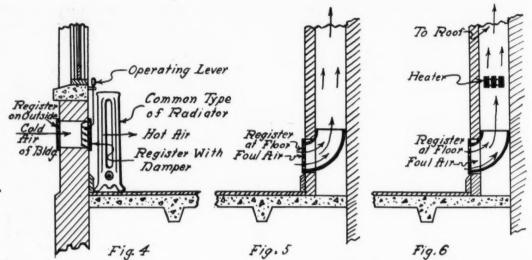


steam and hot water heating in larger buildings were encountered, the flue radiator, Fig. 3, and the vent opening behind the radiator, Fig. 4.

In Fig. 1, a warm air furnace similar to the one still in use for residential work was employed. The air was taken from the outside and in circulating around the furnace was heated and taken into the room through floor registers or wall registers located at the floor. This system was used for heating as well as ventilating, and in larger sizes, the furnaces were often brick-set; that is, set in brick walls, while the warm air piping was either tin or galvanized iron.

In Fig. 2, a steam or hot water heater was located immediately beneath each register, which heated the air passing over it in the same manner as the furnace in Fig. 1. This eliminated the difficulty of maintaining several fires around the building with the accompanying troubles of coal supply and ash removal to and from widely separated points.

Fig. 3 is a flue radiator which was set in the classroom. It had an opening in the outside wall so that cold air as it entered and passed through the radiator was warmed in its travel and delivered to the room as a current of warm air from the top of the radiator. When desired,



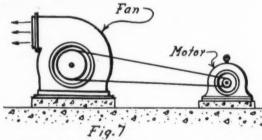
the cold air inlet was closed off and the radiator only used to heat the room just as the common radiator does today.

So far as Fig. 4 is concerned, this probably was the forerunner of the flue radiator. It consists of an ordinary radiator, with an opening in the wall behind the radiator, the opening having a damper. Fresh air from the outside entered the opening, passed through the radiator, and entered the room warmed and tempered.

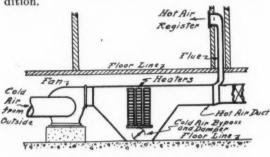
All of the systems so far had no mechanical means of moving the air and depended for their operation on the natural tendency of the hot air to rise (Figs. 1 and 2), or the outside wind to move the air (Figs. 3 and 4), although the flue radiator (Fig. 3) might be said to utilize both of these forces.

It was soon found, however, that the motive force behind the air in these cases was so small that often insufficient air was delivered to the room. To supplement such apparatus, the vent flue (Fig. 5), was evolved to help remove the foul air and assist the fresh air in entering the rooms.

Better results were later secured with the aspirating vent flue (Fig. 6), as it is called, where the flue (shown in Fig. 5) had a heating element placed underneath which raises the temperature of the air in the flue and maintains a chimney action.



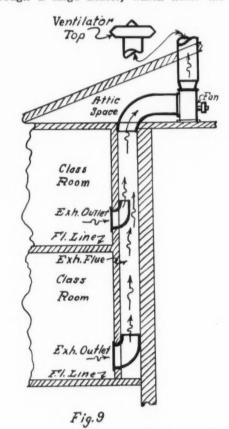
All of these early efforts at ventilation had the radical and serious defect of not being positive. No one could foretell with even approximate accuracy how much air would be delivered to a given room at a certain time, because no one could foretell what the outside weather state, such as wind, temperature, etc., would be, and dependence for positive and continuous action of predetermined amount could not be placed on a variable and erratic weather condition.



The Use of Fan Systems

A new development came into existence, namely, the movement of air into the room by a fan (Fig. 7), which would deliver, at any time it was operated, a practically constant quantity of air. Such a fan was, to a large extent, independent of outside weather conditions and did much to bring ventilation down to an exact and fairly accurate science.

The first application of the fan was to what is known as the hot-blast system, sometimes also called the single-duct system (Fig. 8). Air is taken from the outside and blown by the fan through a large heater, which heats the air.



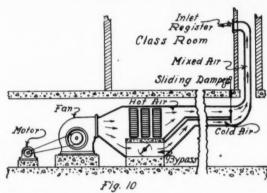
The warm air is then carried by a system of pipes to the various rooms. By a careful setting of dampers in the various branches, it is possible in this system to control, within reasonable limits, the air flow to each room.

Results obtained in the use of fans were so satisfactory that it was not long until another fan was put on top of the aspirating flue and the heater omitted (Fig. 9), thereby making an exhaust duct out of the aspirating flue. In order to economize on the number of exhaust fans required, several exhaust flues were connected together at the top by horizontal flues, and the modern exhaust system was the result.

During the evolution of the aspirating flue into the modern exhaust system several improvements were made in the system for supplying fresh air. It had been found, for instance, that all rooms did not require hot blast air at the same temperature, although they might

require the same quantity of air on account of ventilation requirements. Thus, rooms on the south side of the building, could be heated with less hot air of a given temperature than rooms on the north side of the building, yet to obtain the quantity of air necessary for proper ventilation, the same delivery of air had to be made to both rooms. As a result, the rooms on the south side became overheated, unless the air temperature was reduced to a point where those on the north side were chilled and entirely too cold for comfort.

This was partially overcome, or at least was vastly improved, by the introduction of what is known as the double duct system (Fig. 10).



In this system there are two trunk lines, one for hot air, on the top, and one for cold air, on the bottom. The hot air for the upper duct is obtained by passing it through the heater in the usual manner, but a portion of the air is blown under the heater, escapes being heated, and enters the cold air duct, one fan supplying the motive power for both ducts.

At the base of each flue entering a classroom there is a sliding damper, which moves up and down and is arranged to admit the same uantity of air, no matter what its position. But in the "down" position, a maximum amount of the air is hot, while in the "up" position a large proportion obtained is cold, with corresponding mixtures for intermediate positions between the two extremes. Thus, any room while obtaining its proper quantity of air, can vary it at will, so far as temperature is concerned, by simply raising or lowering the mixing damper.

It developed that heating school buildings by this method was not entirely satisfactory, and that the cost of operating the fans during, for instance, Saturday and Sunday—to prevent the buildings cooling down too far—was considerable. Besides this, to heat up a cold building in the morning was a slow proposition requiring the expenditure of a lot of coal and electric power, as well as time.

The Re-Circulation Idea

Engineers promptly set to work to remedy these objections and found two solutions: One, known as "re-circulation" and the other, and better, known as the "split" or divided system.

The re-circulation system (Fig. 11) involved the return of the warm exhaust air (formerly discharged to the outside by the exhaust fans) back to the inlet of the supply fans so as to feed the fans with warm air, instead of cold outside air. Two results were accomplished by this scheme; the heat formerly lost by discharging the exhaust to the outside was saved with a corresponding reduction in the coal bill; the warm air passing through the heater in re-circulation was raised to a higher temperature than the cold outside air would have reached. This meant quicker heating of the building and a reduction in fuel cost. It did not, however, eliminate the necessity of running fans during the out-of-session periods as were required for re-circulation as these formerly.

The "split" system was a plan using radiation in each room, sufficient to hold the tem-



1. PUBLIC SCHOOL No. 121, BROOKLYN, N. Y.; 2. PUBLIC SCHOOL No. 120, MANHATTAN, N. Y.; 3. PUBLIC SCHOOL No. 47, MANHATTAN, N. Y.; 4. PUBLIC SCHOOL No. 110, MANHATTAN, N. Y.; 5. PUBLIC SCHOOL No. 19 ANNEX, BROOKLYN, N. Y.; 6. PUBLIC SCHOOL No. 54, MANHATTAN, N. Y.; 7. PUBLIC SCHOOL No. 77, MANHATTAN, N. Y.; 8. PUBLIC SCHOOL No. 10, MANHATTAN, N. Y.

THE EVOLUTION OF THE SCHOOLHOUSE IN NEW YORK CITY

With a view of showing the evolution of schoolhouse planning and construction in New York City, Mr. Joseph Miller, Jr., secretary of the board of education, has recently obtained a most interesting group of photographs which he has had appropriately framed and hung on the walls of his office. The group effectively shows the advancement made in schoolhouse work from 1812 to the present time.

The first picture in the group is that of an old one-room schoolhouse, known as Public School 121, Brooklyn, and erected in the year 1812. It is of the familiar box type, with light from two sides and is still doing daily service.

That New York was a congested city as early as 1839 is reflected in illustration No. 2, which shows Public School 120, Manhattan. The building is three stories high and follows the Italian renaissance architecture.

Public School 147, Manhattan, is four stories high and reflects again the increased desire for economizing ground area. The building was erected in 1849 (Ill. 3).

Public School 110, Manhattan, was built in 1865 and represents the Greek revival, which was popular in New York City about that time (Ill. 4).

Public School 19, Brooklyn, was erected in 1879 (Ill. 5); the round windows and the general architecture is typical of this period.

Public School 77, Manhattan, shown in Ill. 6, was erected in 1885 and its counterpart so far as design goes, can still be found in recently erected buildings in some cities where the necessity for unilateral lighting has not yet been recognized.

Public School 54, Manhattan, shown in Ill. 7, was erected in 1888. The need for better fire protection is shown in the unsightly fire escapes

which have been placed on the front of the building.

Public School 10, Manhattan, shown in Ill. 8, was erected in 1895 and is one of the first buildings planned by Mr. C. B. J. Snyder, who until three years ago, was architect and superintendent of buildings for the board of education. This building represents the first attempt in New York City to group windows and reduce the width of mullions so that the lighting which is almost entirely unilateral, may be uniform and ample in the crowded condition of the city.

Ill. 9 shows Public School 1, Manhattan, which was erected in 1898 and which includes some phases of design and planning which are still limited to New York City. Practically the entire first floor is devoted to indoor play space.

Ill. 10 shows Public School 150, Manhattan, erected in 1904. This structure is one of the famous H plans, evolved by Mr. Snyder. The building faces two narrow streets, one at each



9. PUBLIC SCHOOL No. 1, MANHATTAN, N. Y.; 10. PUBLIC SCHOOL No. 150, MANHATTAN, N. Y.; 11. PUBLIC SCHOOL No. 62, MANHATTAN, N. Y.; 12. ERASMUS HALL HIGH SCHOOL, BROOKLYN, N. Y.; 13. PUBLIC SCHOOL No. 152, BROOKLYN, N. Y.; 14. PUBLIC SCHOOL No. 192, BROOKLYN, N. Y.

end, and is cut off on each side by high buildings. The classrooms all face the streets, or the two open courts, and thus receive ample light and air. The roof is arranged for play space.

Public School 62, Manhattan, was erected in 1904, and was for many years one of the show buildings of the New York City schools. It houses more than 5,000 children and is in the Five Points district, one of the most crowded tenement sections of the east side (Ill. 11).

Ill. 12 shows the Erasmus Hall high school, built in 1905. This building was for many years acknowledged to be one of the finest and most completely equipped high schools in the United States. The building has been enlarged by a number of additions and the school is one of the largest in the city.

Public School 152, Brooklyn, shown in Ill. 13, was erected in 1907, and is a typical elementary school, erected in the less thickly populated dis-

triets of the city during the first decade of the present century.

Ill. 14 shows Public School 192, Brooklyn, which was erected in 1924. It is five stories high with a roof playground, and represents an elementary school building in a crowded section of the city.

Ill. 15 is Public School 210, Brooklyn, another type of elementary school for badly crowded districts.



15. PUBLIC SCHOOL No. 19, QUEENS, N. Y.; 16. GEORGE WASHINGTON HIGH SCHOOL, MANHATTAN, N. Y.; 17. PUBLIC SCHOOL No. 210, BROOKLYN, N. Y.; 18. PUBLIC SCHOOL No. 79, BRONX, N. Y.; 19. PUBLIC SCHOOL No. 72, BRONX, N. Y.; 20. PUBLIC SCHOOL No. 81, BRONX, N. Y. (See Illustrations 21 and 22 on Page 91.)

The George Washington High School, Manhattan, erected in 1925, is shown in Ill. 16. This building is deservedly one of the show buildings of the Greater New York school system. It occupies a commanding position on Washington Heights in the best residence section of the city.

Illustrations 17 and 18 are respectively Public School 210, Brooklyn, and Public School 79, The Bronx. These buildings have roof playgrounds and were among the first structures designed by Mr. William H. Gompert, architect

and superintendent of buildings of the New York schools at the present time.

Ill. 19 is that of Public School 72, The Bronx, a three-story type of building intended for a reasonably open district of the city.

Ill. 20 is that of Public School 81, The Bronx, erected in a section where it is not expected that there will be any great congestion of population. The building is only two stories high, with an auditorium in an annex, and with provisions for enlargement.

Illustrations 21 and 22 are two recent types of buildings for higher education. The former is the James Madison High School in Brooklyn, which is in reality two structures, an academic building and a shop building. The latter is the New York Training School for Teachers, a magnificent building overlooking Morningside Heights, erected in 1926.

The arrangement of the pictures is both instructive and interesting and school people who are constant visitors in Mr. Miller's office can see at a glance how the New York City schools have grown in their arrangement, etc., and how splendidly they reflect the material, social, and educational progress of the community.

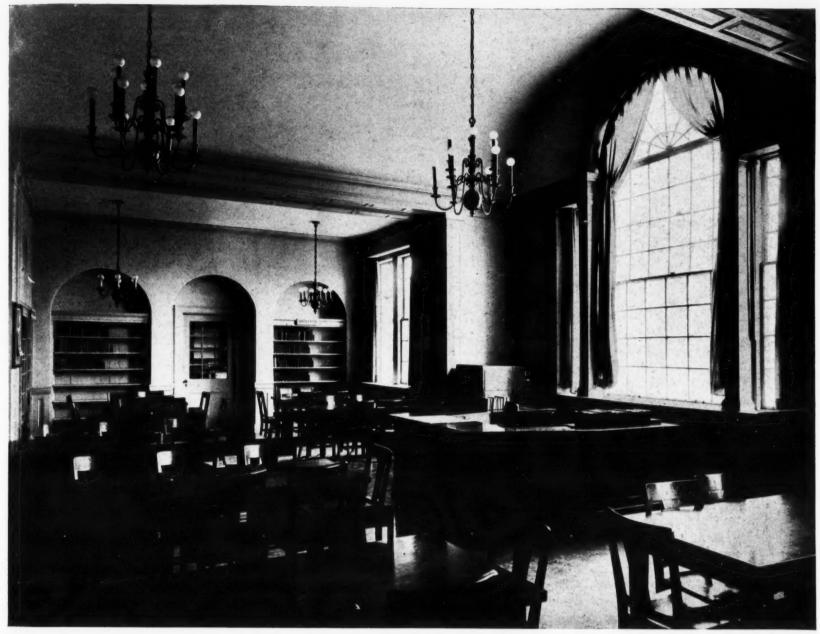


JUNIOR HIGH SCHOOL No. 3, TRENTON, N. J. Ernest Sibley, Architect, Palisade, N. J. J. Osborne Hunt, Associate Architect.

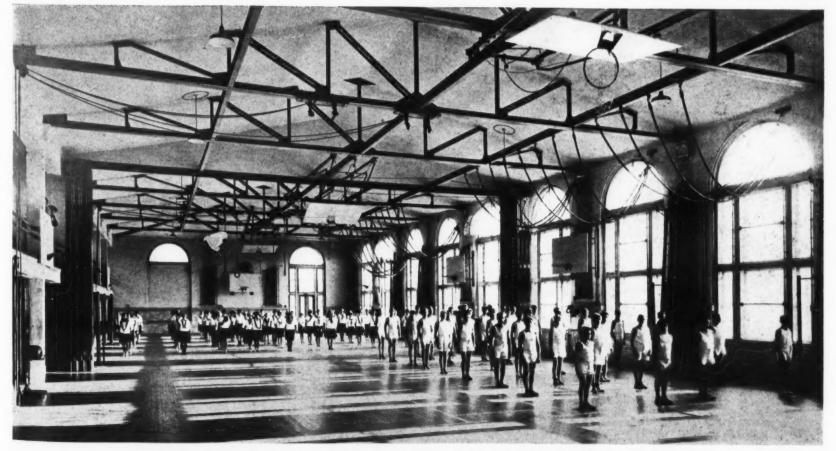
TOP: Kindergarten and Central Facade with Memorial Fountain in Foreground. BOTTOM: Swimming Pool and Modern Suite Looking Toward Living Room and Bedroom.



AUDITORIUM OF JUNIOR HIGH SCHOOL No. 3, TRENTON, N. J. Ernest Sibley, Architect, Palisade, N. J. J. Osborne Hunt, Associate Architect.



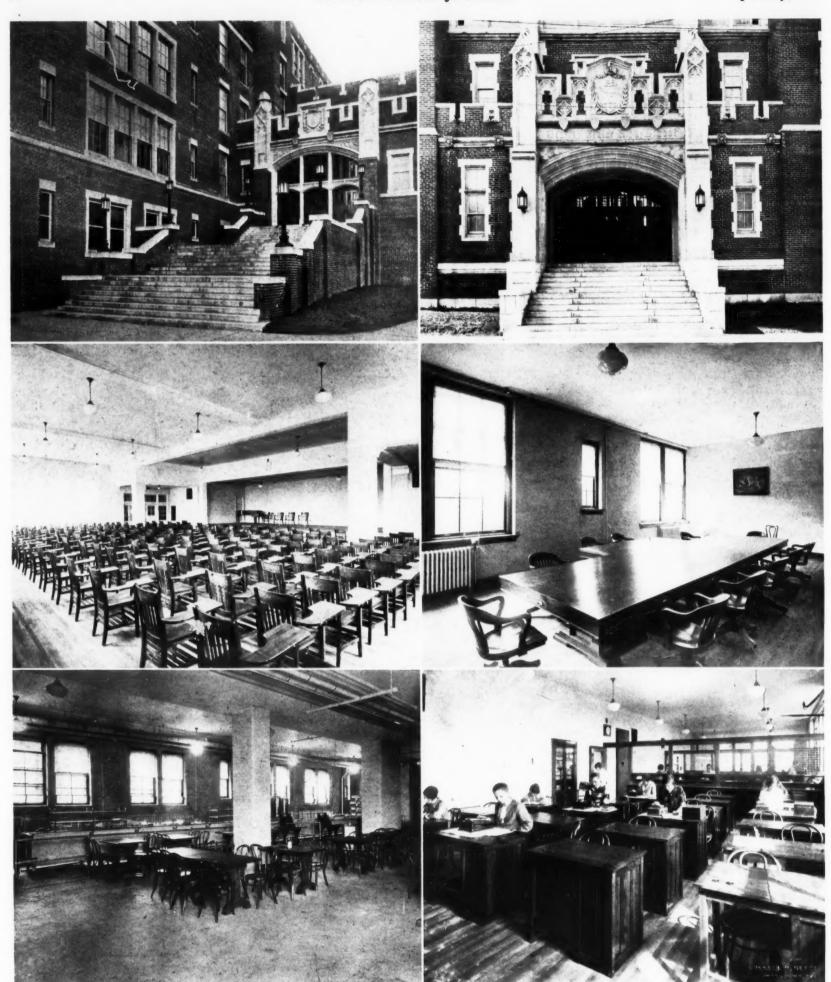
LIBRARY.



DOUBLE GYMNASIUM WITH FOLDING DOORS BETWEEN GIRLS' AND BOYS' GYMNASIUMS OPENED.

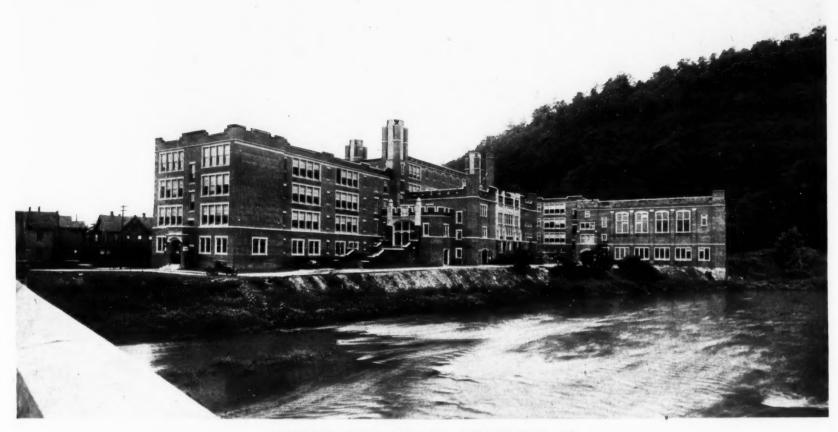
JUNIOR HIGH SCHOOL No. 3, TRENTON, N. J.

Ernest Sibley, Architect, Palisade, N. J. J. Osborne Hunt, Associate Architect.



CENTRAL HIGH SCHOOL, JOHNSTOWN, PA.

TOP: River Entrance—"Main" to Auditorium and Somerset Street Entrance—"Front" Entrance. CENTER: Audion and School Board Room. BOTTOM: Cafeteria and Bookkeeping Rooms.



CENTRAL HIGH SCHOOL, JOHNSTOWN, PA.

J. E. Adams, Supervising Architect, Johnstown, Pa. E. L. Tilton, Consulting Architect, New York, N. Y.

The New Central High School, Johnstown, Pa.

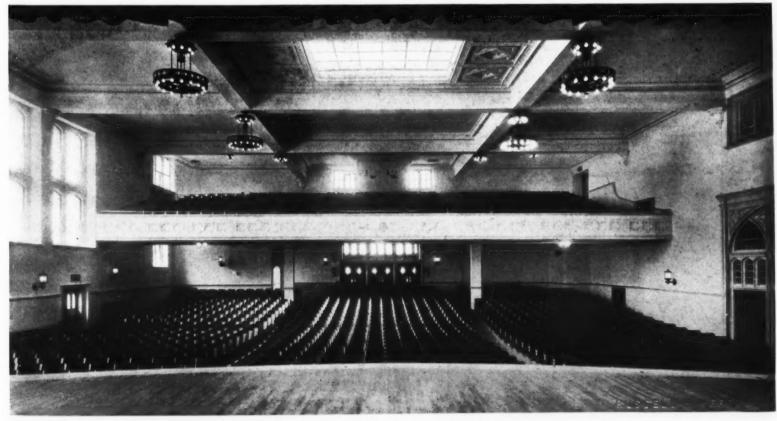
James Killius, Principal and Director Vocational Education

Modern features of utility united with architectural design of the Middle Ages make Johnstowners truly proud of their new high school. The location is "at the immediate base of a beautiful, forest-clad hill, beside the graceful curve of the river, in the geographical and commercial center of the busy, prosperous city, that Johnstown has builded this monument. From its windows may be seen, in brick and mortar, the manifestations of a throbbing life

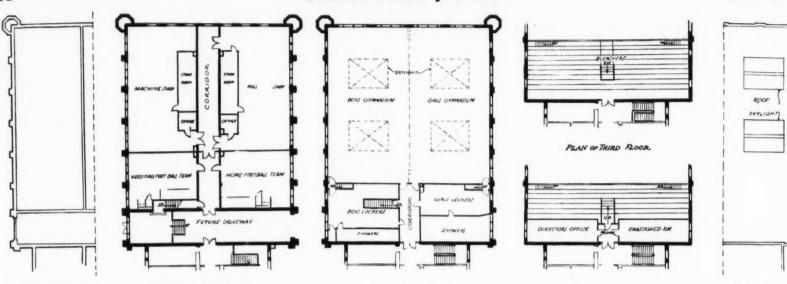
and of an achieving people. It is at the heart of potential action, removed from the din and clamor that would distract, yet in the atmosphere of dynamic activity."

Perhaps the main entrance and foyer best express the architectural design. Every detail of an ornamental nature portrays the Gothic effect, such as columns, molding, arches, quatrefoils, and bronze lights. The composition of the floor and steps is pink Tennessee marble, and the banisters are trimmed in Verde antique marble. E. J. Tilton, consulting architect, has shown his characteristic genius in the use of a vaulting scheme such as characterizes many European cathedrals of the twelfth and thirteenth centuries.

One feels the majesty and solemnity as he enters the spacious auditorium on the second floor. An audion, signifying a small auditorium is located on the fifth floor, thus eliminating



AUDITORIUM FROM THE STAGE AT THE CENTRAL HIGH SCHOOL, JOHNSTOWN, PA.



FLOOR PLANS OF THE GYMNASIUM BUILDING.

PLAN OF FIRST MOOR J. E. Adams, Supervising Architect, Johnstown, Pa.

PLAN OF SECOND PLOOR & PLAN OF A E. L. Tilton, Consulting Architect, New York, N. Y. any interference with other school activities.

It is devoted to music and dramatics. hundred and fifty arm chairs have been placed there for seats, easily removable so that the hall may be used for social functions. A medium-sized stage is available for entertainments of a diversified nature. In the rear of the stage to the left and right are rooms for accessory equipment and band instruments. The audion is simple in design, and decorated throughout in white. The corridor to the left leads to classrooms for dramatic purposes and

the one to the right to classrooms for instruc-tion in musical theory. The hall offers accommodations for class, alumni, faculty, and other gatherings. Each corridor opens onto the roof. One is

tempted to predict that some day open-air classes for the handicapped will be added to the offerings of the institution.

The floor plans were prepared from preliminary sketches submitted by Superintendent Slawson. Naturally his ideas dominate the structure, and the satisfaction he enjoys in the building's completion comes as a fitting climax to his years of service in education.

From an administrative standpoint the four main floors are each distinct units. Each floor has a long and short corridor joined at right angles. At this strategic point or vortex is located an administrative office. This feature makes it possible to relieve the main office of much routine work. The fourth floor is assigned to seniors or twelfth year students. It provides for all their work except library, music, dramatics, and boys' shops.

The third floor provides for all junior work except music, dramatics, boys' shops and girls' work in art, dressmaking, and millinery. second floor, at present, is used for tenth year work. Eventually the plan is to use it for two years of junior college. The first floor is given to industrial shop work.

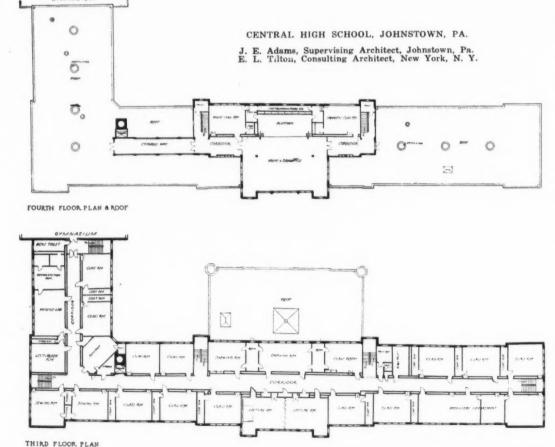
Johnstown has three junior high schools. The present six-three-three system is gradually changing to a six-four-two. The geography of a city laid out in the narrow valleys of Pennsylvania mountains naturally suggests such an arrangement. A new junior high school is now under construction in the west end of the city.

Each classroom is provided with a separate cloak room under the direct supervision of the teacher. The seating varies; movable seats, single pedestal, fixed seats, and arm chairs are used, depending upon the subject or use to which each room is put.

The bookkeeping room on the fourth floor houses seventy or more students at one time, its space being equivalent to three classrooms. The central section of the room is enclosed by two grills that provide a banking exchange, pay windows, etc., for practical instruction in that particular phase of the commercial course.



LIBRARY.



SECOND FLOOR PLAN

Down the corridor on this floor is the nurse's room, equipped with a hospital bed, first-aid cabinet, and lavatory, where a nurse is on duty during school hours.

The art department is made up of three intercommunicating rooms. Opposite is a lecture room with a seating capacity of 125 students divided by folding doors and which can be used as two separate classrooms.

Dressmaking and millinery rooms are together. One passes the automatically controlled elevator—screens and electrical connections for visual education are seen in many of the rooms. The physics unit is made up of a suite of lecture, laboratory, supply, and recitation rooms. The corridor leads to the balcony of the gymnasium.

On the third floor the chemistry unit directly under the physics unit is unique. There is one laboratory of individual tables and one using the group plan. A lecture room, an advanced laboratory, and a dark room are supplemented by two ordinary classrooms.

The library on this floor has a capacity of 140 students and 12,000 volumes. Small study rooms at either end increase the effectiveness of the unit. The library is equipped with metal furniture throughout.

In line with the chemistry and physics units above, a biology suite occupies a place on the second floor. The room that corresponds to the lecture rooms above, however, changes to a museum of natural history and is furnished accordingly.

The school building program of which the new high school is a part also included an administration building. For the present one section of the second floor of this high school has been arranged for the supervising and business offices of the entire school system. Here are the superintendent, the secretary, the supervisors, and the board of school directors. These offices are separated by temporary partitions which may be removed and the unit changed into classrooms when necessary.

On the first floor provision has been made for storage and book supply rooms for the school district. The space under the auditorium is utilized one hundred per cent. Separate entrances, one of which admits auto trucks, make everything here especially advantageous.

The auditorium stage and its equipment parallels that of the best theatres. Apparatus has been installed for special color lighting effects, as well as the usual foot and border lights. In the background is a cycloramic curtain. In the rear of the balcony is a motion picture booth with two projection machines, thus permitting movies in addition to dramatic and musical entertainments. A large orchestra pit fronts on the stage. Seating capacity 1,300.

The cafeteria on the first floor seating five hundred is equipped with the highest grade serving counter, and is furnished with linoleumtop tables. The kitchen compares favorably in electrically driven apparatus with any in the city.

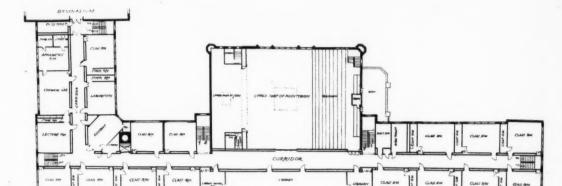
The domestic science kitchen, pantry, and dining room are inter-communicable. The practical work here supplements that of the cafeteria.

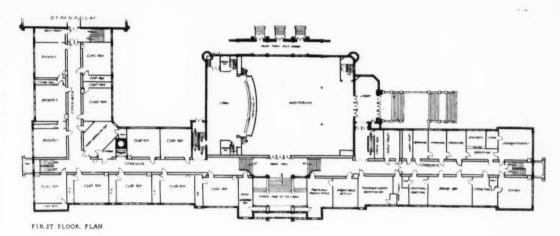
The gymnasium is separate and yet a part being located at the extreme end of the shorter wing of the building. It is really a double gym separated by folding doors, one side for girls and one for boys. Showers, dressing rooms, lockers, etc., are available. When occasion demands the two gymnasium units can be thrown together.

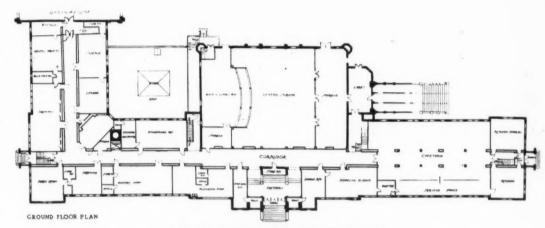
Underneath the gymnasium or rather on the first floor, two unique rooms with locker and shower facilities are designated "Home Team" and "Visiting Team". Since these are directly accessible from the outside school men can readily see the advantage.

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CENTRAL HIGH SCHOOL, JOHNSTOWN, PA. J. E. Adams, Supervising Architect, Johnstown, Pa. E. L. Tilton, Consulting Architect, New York, N. Y.

Here, also, under the gymnasium are the large well equipped machine shops, and mill woodworking shop. These shops are the only "noise makers" but they are essential units in the vocational work.

Plumbing, electricity, printing, and mechanical drawing, besides the machine shop and wood shop already mentioned, constitute the boys' vocational shop unit. These shops are laid out very definitely. The instruction is of trade apprenticeship nature, consistent with the needs of an industrial city. Accordingly the equipment is as complete and elaborate as that in the best shops in the city. The machines were selected with the approval of local trade experts. Skeleton house frames are in the process of erection and change in the various "building trades" units at all times. By arrangement with a local industry, raw material comes into the machine shop and the finished product goes back, thus insuring practical work. The print shop is equipped to do all the school printing.

The toilet and washroom facilities are unexcelled. These vocational shops are as superior to the shops of ten years ago as the rest of the building is superior to the little rural school of a decade past.

One big thing still remains to make the plan complete: A retaining wall along the river front. The completion of the sanitary sewer leads Johnstowners to hope for the beauty and benefits of a mountain stream such as they once knew. If city council and the school board joins hands, make the retaining wall an attractive river approach, put in a series of dams and back up the river for swimming, skating, and boating, the Johnstown high school will have advantages and appearance surpassed by few schools in the country.

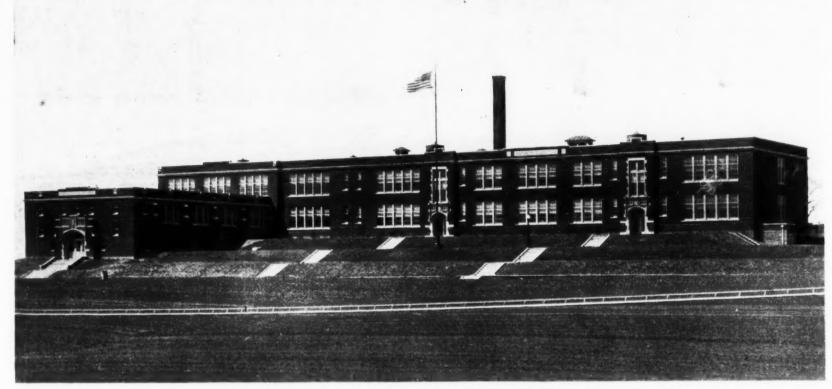
The high school can accommodate about 1,500 pupils, with present possibilities for 1,800. The day school enrollment is 1,200; 600 teachers take college extension work after school hours, and another 1,200 students attend evening school. Such continual use justifies the dreams of the superintendent, the genius of the architect, the skill of the contractors, the foresight of the board of school directors, and the support of the community.

The following were entrusted with the designing and supervision of the structure: Superintendent, Dr. S. J. Slawson: Secretary board of school directors, Wilbert C. Wehn; chairman building committee, George S. Fockler; architect-supervising, J. E. Adams; consulting architect, E. L. Tilton.

The construction began October, 1924, and was completed July, 1926. It was furnished and occupied September 7, 1926.

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ROOSEVELT GRADE SCHOOL, RICHFIELD, MINN. Stebbins. Haxby & Bissell. Architects, Minneapolis, Minn.

Enlarging the School Building

Samuel A. Challman, State Director of School Buildings for Minnesota

Any live community needs men and women of vision at the helm, people who not only believe in its growth, but actually prepare for it. While no school board would purposely cause a comparatively small building to be constructed that would preclude the possibilities for expansion, still a great many school boards are unwittingly led into such a situation.

Sometimes there is an ultra conservative member or two on the school board, who fight for mistaken economy by insisting that corridor space be curtailed, because it is not absolutely necessary for the building under immediate consideration or that sizes of rooms be cut below well established standards, or that fenestration be distributed for ornamental purposes, thus making it difficult to add future extensions and connect them to the original building.

Sometimes an architect is employed who is circumscribed in his planning by the apparent needs of the immediate situation and he either does not or cannot look far enough ahead. In consequence he subordinates the orientation,

the location of the building on the site, the interior arrangement of the rooms, and the arteries of circulation in the building to less important features by means of which a slight saving of floor area may be secured and a reduction in the immediate cost obtained.

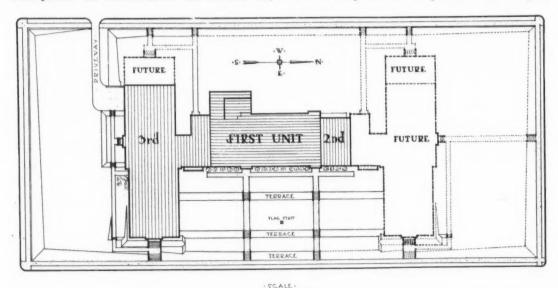
As a matter of fact nearly all such economies generally prove quite expensive in the end, when the school district finds that enlargement of the building generally means extensive alterations and results most frequently in undesirable sizes of rooms, inconvenient corridors, botched construction, and an exterior almost wholly devoid of architectural treatment.

Barring such school buildings where the conditions of site and the administrative unit clearly indicate that expansion would be inadvisable and impracticable, every schoolhouse, large or small, should permit of one or more additions. Simple as such a problem may seem after it has been worked out by properly locating the initial structure on the site and designing the same with due regard to use and a favorable exposure to the points of the compass

giving the best conditions for daylight illumination, it is, nevertheless, a task which requires a trained insight into a number of important conditions. These include such factors as the size and use of the site and the possibilities of its enlargement, the educational organization of the school system with particular reference to the development of that part of the system for which the building is to be designed, the architectural and structural considerations affecting the initial structure as well as the enlarged building, and the character and size of the mechanical equipment in order to meet the increasing demands as the building may be expanded from time to time.

A concrete illustration of how to build so as to keep these objectives in mind may be had by a study of the growth of the Roosevelt school in the town of Richfield, just beyond the city limits of Minneapolis. This community ten years ago had a one-room school in the eastern part of the district and a two-room school in the western. As the school enrollment grew beyond these limits, the school board resorted for a time to the use of a basement room in the two-room school and a basement of a church in order to meet the most urgent needs confronting them.

In 1919 it became evident, however, that a new building was imperative. Building costs were high, and the temptation to erect temporary structures to take care of the immediate needs was great. Wiser counsel prevailed, however, and a permanent building was voted. A central site of a trifle more than three and onehalf acres, well adapted to beautification by terraces, lawn, shrubbery, and trees in front, and playground space in the rear and on the sides, was selected. The architectural firm, Stebbins, Haxby, and Bissell of Minneapolis, was engaged to prepare plans and specifications and supervise the construction of the building. This firm, having had years of experience in schoolhouse construction in the city of Minneapolis, and the members of the school board being mostly business men in the city of Minneapolis, realized early in their deliberation that whatever was built should be built to permit of future expansion.



ROOSEVELT SCHOOL, RICHFIELD, MINN.

PLOT PLAN

Stebbins, Haxby, & Bissell, Architects, Minneapolis, Minn.



GYMNASIUM-AUDITORIUM (LOOKING TOWARD STAGE), ROOSEVELT GRADE SCHOOL, RICHFIELD, MINN.

Before the first unit was erected, a careful survey of the grounds was made with a view of placing the original building to advantage so that future additions might not encroach upon the proper setting of the building or the playgrounds for the children. The present structure, consisting of three units, is set back 109 feet from the street in front and 95 feet from the street in the rear. Toward the north where the second unit was erected there are 212 feet to the street and toward the south where the third unit has been erected, there are 112 feet to the street.

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The first unit was built to include eight grade rooms, a library, a home economics room, and administrative rooms such as principal's office, teachers' room, nurse's room, storage rooms, and room for fuel and the mechanical equipment. The second unit provided four additional grade rooms, and a community room. The third unit included a combination gymnasium-auditorium, two grade rooms, a study room with a library in the rear, eight recitation rooms, two toilet rooms, gymnasium locker rooms, a storage room, and a garage large enough to accommodate four buses.

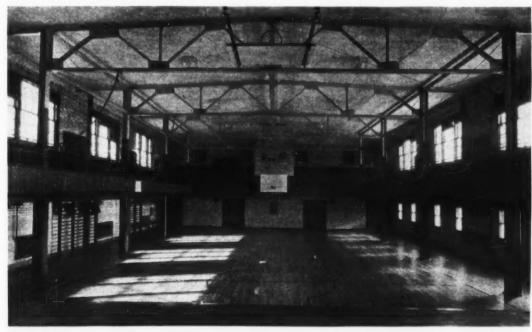
As may be noted from the illustration of the building, all rooms for school purposes have their floor levels above grade, and all rooms are unilaterally lighted. The first unit was built to front the east and all grade rooms as well as the study room and library have either east or west light. North or south light has been used only in classrooms or recitation rooms in which pupils are seated merely during recitation periods. The only rooms below grade level are the rooms for the mechanical equipment and the community room in the north end of the building. The present gymnasium-auditorium is located on the first terrace level above the sidewalk. Eventually this will be used as a gymnasium only and an auditorium will naturally be built at the opposite end of the building from the gymnasium and on the same level as the gymnasium.

The building furnishes some interesting data as to cost. The first unit, as indicated on the plot plan, was approximately 132 feet by 63 feet and contained 296,382 cubic feet. The contract for this building was let in February, 1920, when building material prices were virtually at their peak. The various contracts, which included general construction, mechanical equipment, deep well pump for independent water supply, and a sanitary sewage disposal system with a settling tank, a dosing tank, and a tile absorption system, were let at \$126,731, in which amount is also included the architect's fees. On this basis the cost per cubic foot was 42.7 cents. Subtracting the architect's fees and

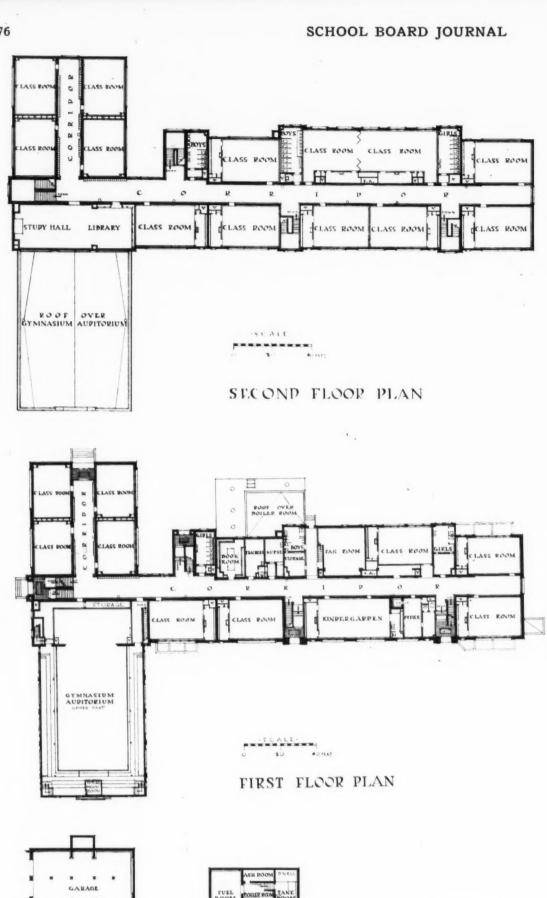
computing the cost on contracts only, as is quite generally the custom, the price per cubic foot would be 39.7 cents.

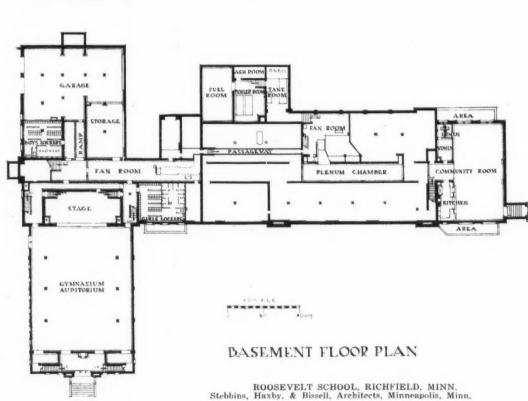
The second unit was built in 1923. For this unit no additional boiler was installed and only a few plumbing fixtures. The contracts were let in May at a total amount, including architect's fees, of \$25,552.80. The unit contained 92,840 cubic feet, making the cost per cubic foot 27.5 cents, or if computed on contracts only 26.2 cents.

Two years later, or in 1925, a third unit was added. Included in the mechanical equipment was an additional boiler and plumbing for two toilets. The addition is 59 feet by 183 feet with a connecting link 43 feet by 36 feet, and contains 455,330 cubic feet. The contracts for this



GYMNASIUM-AUDITORIUM (LOOKING TOWARD ENTRANCE), ROOSEVELT GRADE SCHOOL, RICHFIELD, MINN,





unit, which were let in February, 1925, including architect's fees, was \$107,835.02, making a cost per cubic foot of 23.6 cents. Excluding architect's fees the cost per cubic foot was 22.3 cents.

The building as it stands today, built in three installments, was erected at a cost of \$260,-119.08, which means an average of 30.7 cents per cubic foot-a very reasonable cost considering the time during which the building was constructed and the character of construction. The building is a fireproof structure with the exception that the roof construction is of wood. A face brick of variegated colors with Indiana limestone trimmings has been used for exterior

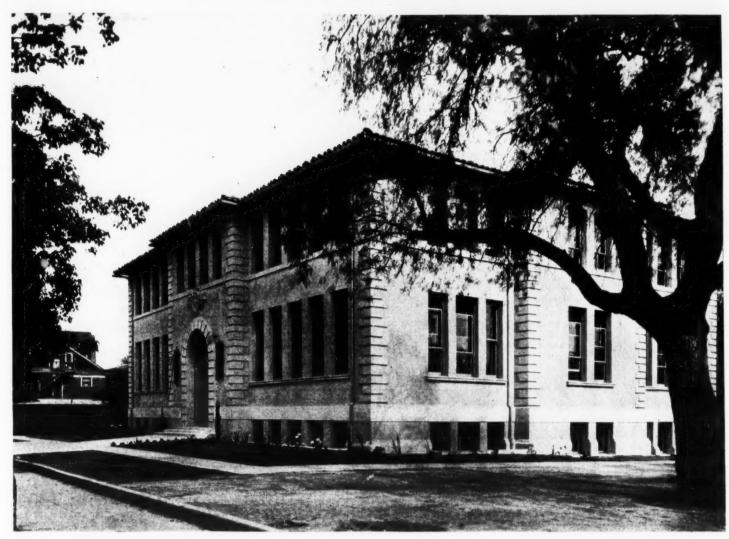
In computing the distribution of the cost of this building on the contracts let, it will be found that the general construction ran 74.4 per cent of the total, the heating, ventilating, and plumbing 21.6 per cent, and the electrical contract 4 per cent.

It may seem at first glance that the additions to the original structure came rather soon after the first unit had been erected, but on each occasion the board overbuilt the immediate needs by from two to five rooms. There are now four rooms vacant, which at the present rate of increase in enrollment will be occupied within the next four years. It is a rather precarious undertaking to attempt to estimate the growth of the population on the fringes of a large city, as there are always competitive subdivisions which appeal to the commuter and cause a rapid growth in one direction at one time and in another at another time. The board has apparently used good judgment in the past in estimating the increase and has been ready to meet its educational needs in a highly satisfactory and economical manner. As may be noted from the plot plan, there are still future additions possible without encroaching upon the lawn in front of the playgrounds on the sides and in the rear.

The playgrounds in the rear have been fitted up with apparatus. On the north there is a baseball diamond and a large open space for play and games. On the south, which at present is little used, there is also a large playground space. Granting that all the space shown on the plot plan be used for the building, there will still remain for purposes of play enough grounds for a thousand children at sixty square feet per pupil.

The building has all the conveniences generally found in a modern school. It is equipped with a program clock and an inter-phone system. It has a community room, used by the Woman's Club and the Boy Scouts and also for small social gatherings. There is a small kitchen in connection with this room and at noon a cafeteria lunch is served to about 200 children. Folding doors between two school rooms make possible a small assembly room on the second floor. There is a nurse's room, a teachers' rest room, a gymnasium, shower baths, and locker rooms. The gymnasium floor is 56 feet by 70 feet. The gymnasium also serves as an auditorium at the present time. The stage is 42 feet by 19 feet. The balcony for spectators will seat 350. When used as an auditorium, the room with its baleony has a seating capacity for one thousand. There is a motion picture booth equipped with a projector. The auditorium is used on an average once a week and the gymnasium aside from its use during the day by the school is in use four evenings out of six. There is also a garage for the transportation buses and 160 children are brought to and from school in two buses which make two trips each morning and evening. When the weather is inclement the children enter the buses in the garage.

(Concluded on Page 158)



BOARD OF EDUCATION BUILDING, PASADENA, CALIF.

Cyril Bennet and Fitch H. Haskell, Architects. Pasadena Administration Building

Henry G. Lehrbach, Business Manager, Board of Education, Pasadena, Calif.

With the growth and expansion of civic consciousness, there has developed a greater understanding and appreciation of educational needs. Today we find educational systems making some provision for headquarters for those responsible for the administrative work of the schools. This is preferably a building, or group of offices, centrally located and independent of any school.

For some time, the board of education of Pasadena had been carefully studying the problem of centralizing administrative offices. At length, a decision was reached that the solution lay in the provision of an administrative building, adequate for the needs of the board of education and the administrative staff, as well as the directors and supervisors of the various departments. In March, 1924, a school bond issue of \$2,994,000 was voted by the citizens of Pasadena for new school buildings throughout the district. Included in the budget was an item of \$120,000 to provide for an administration building. In this article, the writer will explain how subsequent developments made it possible to secure a building ideally suited to our present school needs at less than one-third of the original allotment.

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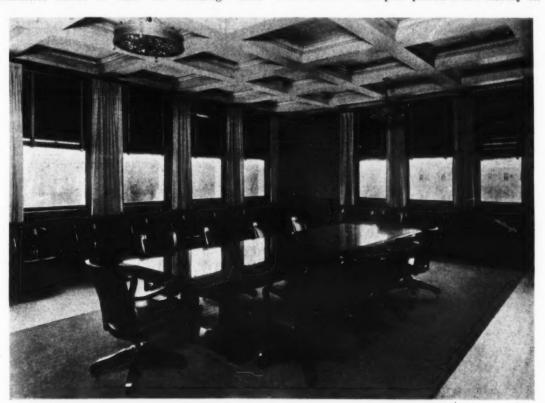
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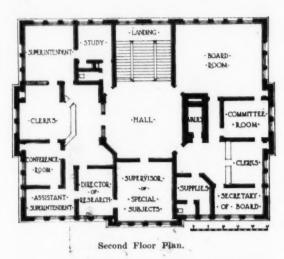
For a number of years, a suite of commercial offices had been leased by the board of education at a very low rental. When this lease expired, the rental was raised to \$6,000 per year. Since the school population had increased from 8,328 in 1918 to 17,075 in 1925, there was necessitated an enlarged directing personnel. As the crowded conditions became intolerable, further offices were leased elsewhere in the building, making the rental of all of the offices for 1925, \$7,764. It was realized that the sum was exorbitant for such limited quarters, which were much too small and unsuited to the efficient functioning of the administrative units. The educational program had been expanded, and under the existing arrangement, the directors and supervisors had desks in different school buildings, or wherever space could be secured. Likewise, there was the added office force incident to the planning and supervision of the construction of 21 new school buildings. Another problem demanding consideration was the lack of parking facilities about or near the building. This

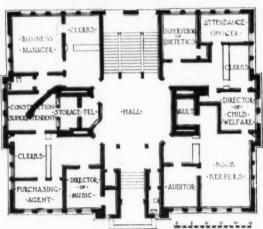
proved a decided inconvenience to those whose work brought them in contact with the educational departments. All of these factors had an adverse influence upon the work of administration.

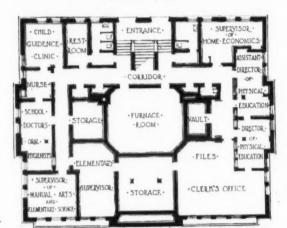
Shortly after the school district had voted money for new school buildings, the City of Pasadena determined upon a plan to provide a civic center. This plan placed a new library on



BOARD MEETING ROOM, BOARD OF EDUCATION BUILDING, PASADENA, CALIF.







Ground Floor Plan.

BOARD OF EDUCATION BUILDING,
PASADENA, CALIF.

Cyril Bennet and Fitch H. Haskell, Architects.

one side, and a new city hall on the other side of the Benjamin Franklin School. The gradual shifting of the population from the business center of the city had caused the enrollment of the Franklin School to decrease from year to year. Obviously, if the children attending the school could be cared for elsewhere, and the building remodeled satisfactorily, it would be ideally located to serve for administration head-quarters, and, at the same time, add another unit to the civic center. In addition, considerable saving in both time and money would be effected, since only the work of remodeling the building would be necessary. Ample parking space was available in the play lot adjacent to the school

The Benjamin Franklin School was an eightroom building constructed of red brick, designed after the pattern of schools built in the latter part of the nineteenth century. The architecture was devoid of ornament or attractive features. The interior, of frame construction, consisted of four rooms on each floor around a central court. It was apparent that there was sufficient floor space for the desired offices. Thus there was presented an exceptionally interesting problem to develop a satisfactory arrangement

of the interior and to bring the exterior into harmony with the adjacent city buildings.

It was not until the latter part of 1925 that the acute school room shortage throughout the district was relieved. When the school building program for the next year was satisfactorily under way, architects were commissioned to remodel the Franklin School into an administration building. They found that the work of dividing eight classrooms with the unilateral lighting into office space of proper proportions with satisfactory corridor communication was not easy. At first, a study was made of the most desirable grouping of the various offices. One classroom on the second floor was set aside for a board room and the double cloak closet between that and the adjacent classroom for a committee room. It will be noted that the adjacent classroom is readily adapted to the needs of the secretary of the board. Since a new type of roof was being added and the ceiling of the second story lowered, it was easy to remove the remaining partitions. The balance of the second floor was remodeled to provide a suite of offices, which is practically self-contained, for the superintendent of schools. Offices were provided for clerical assistants, supervisor of special studies, director of research, and the assistant superintendent, all of whom are in daily conference with superintendent, Mr. John Franklin West.

On the first floor, three classrooms with the adjacent cloak rooms were set aside for the business offices, providing facilities for the business manager, auditor, superintendent of construction, and the purchasing agent. The remaining classroom was divided for the child welfare department and the supervisor of dietetics, who is also manager of school cafeterias. As all of the schools in the Pasadena system are connected to one central telephone switchboard, provision was made in the main hall for this equipment, where the operators also serve as information clerks. Because of the framing, it was practically impossible to remove any of the supporting partitions on the first and ground floor. All of the offices on these floors were provided by the installation of additional partitions.

On the ground floor, a large section was assigned to the director of physical education and his assistants, who also supervise the playground work after school hours, on Saturdays, and during vacations. This work is carried on by the playground community service, which is supported jointly by the board of education and the City of Pasadena. Offices were made available on this floor for the supervisors of home economics, manual arts, and elementary science, and the doctors and nurses working under the director of child welfare. An attractive rest room was furnished for the clerical assistants.

On account of the extensive alterations of the interior, it was obvious that none of the old plastering would remain sound. Consequently, all of it was removed and the interior plastered on metal lath, thereby increasing the fire resistance.

A vault is built on each floor, affording fireproof storage for the valuable records of the auditor and secretary. Movable filing equipment on trucks is used for placing the books and files inside these vaults each night. There are portable, fireproof safes in the offices of the superintendent and business manager.

Careful consideration was given to the auxiliary equipment and furnishings. All the floors throughout the building are covered with battleship linoleum, excepting the ground floor where asbestos composition flooring is used. The windows are shaded with Venetian blinds. An automatic electric time clock system serves each group of offices and as a master clock for the district. The building is heated by steam

through a one-pipe gravity system from a cast iron, oil-fired boiler. A dictograph system of interior communication connects the offices of the administrative staff and the auxiliary offices of each department.

Particular attention was given to the furnishing of the board room. Quite frequently delegations of school patrons meet with the board so that a room of adequate size, appropriately equipped, was considered are essential feature of the building. The decorations of the room include a beamed ceiling, tapestried walls, and monk's cloth draperies. The woodwork is finished to match the American walnut furniture. A fourteen-foot table comfortably accommodates the five members of the board of education and the administrative staff, consisting of the superintendent and assistant superintendent of schools, the business manager, the auditor, and the secretary. The board room is simple, but dignified in its atmosphere.

The building has a tile roof and the red brick exterior is stuccoed. In general appearance, it conforms to the Italian style of architecture, characteristic of the adjacent public library.

The board of education has purchased a small strip of property between the old school playground and the city hall. This ground can be used for an addition, should future developments require increased facilities. Meanwhile, the grounds have been beautifully landscaped, befitting the civic center.

The total cost of the alterations, including the fees, amounted to \$38,000. It has been estimated that the same accommodations in a commercial building would have involved an annual rental expenditure of approximately \$15,000. Within a period of three or four years the cost of remodeling will have been saved and a large annual expense avoided. The planning and construction of the building was carried out under the supervision of the writer.

THE NEW YORK STATE COMMISSION ON VENTUATION

Thomas J. Duffield, Executive Secretary
The New York State Commission on Ventilation was organized in 1913 to study problems of school ventilation from the physiological and engineering standpoints. The governor appointed as members of the commission: Professor C.-E. A. Winslow, chairman, now professor of public health, Medical School, Yale University; Mr. D. D. Kimball, a practical ventilating engineer, New York City; Dr. Frederic Lee, now research professor of physiology, College of Physicians and Surgeons, New York City; Dr. James Alexander Miller, director of the Tuberculosis Clinic, Bellevue Hospital, New York, professor of clinical medicine, College of Physicians and Surgeons, New York; Professor Earle B. Phelps, now professor of sanitary science, College of Physicians and Surgeons, New York, and Professor Edward L. Thorndike, professor of educational psychology, Teachers College, Columbia University, New

The commission published in 1923 an exhaustive report, Ventilation, (620 pp., E. P. Dutton & Co., New York) which led to the general conclusion that modified window ventilation was, on the whole, more satisfactory and more economical than the system of mechanical fanventilation so generally used and required by law in many states,

Since the publication of its report, the commission had been inactive until September, 1926, when it opened an office at 370 Seventh Avenue, New York City, for the purpose of carrying forward a study of window-gravity ventilation and the furtherance of its application. The work will consist in accumulating data in regard to systems of window ventilation actually in operation, in studying the conditions essential for the success of this method, (Concluded on Page 150)

School Architecture from the Aesthetic Point of View

John Morton Finney, Indianapolis, Ind.

To be clear and systematic any discussion of school architecture from the aesthetic point of view must proceed from a definite understanding of the meaning of those terms in the subject upon which there may be either disagreement or of which there may be varied interpretations. To forestall either of these possible conditions, the ambiguous terms are selected for definition and interpretation. For the term "architecture" we accept the definition given in the standard dictionary, namely: "The science and art of designing and constructing buildings, especially with reference to adaptation to their ends and to beauty of form and proportion."

The definitions both of "aesthetics" and of "aesthetic" are taken as given by Webster's New International dictionary, namely: "Aesthetics-Science of the beautiful in nature and art, especially that treating of the expression and appreciation of beauty; the theory or phil-

osophy of taste."

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Aesthetic-Appreciative of the beautiful in nature and art."

Since the concept "architecture" includes building construction as that construction is affected by both the purpose of the building and by the beauty of the structure, we shall have to divide the concept in order to deal more specifically with our subject. Our problem, then, is to view the beauty of a school building as that beauty reveals itself in the material structure, the handiwork of the school administrator, the school board, and the school architect, jointly. In short, we are to examine the aesthetics of schoolhouses.

Architecture is not only ranked among the fine arts, but is even given first place among those of form.1 It lifts, as it were, building construction above the sordid level of mere fashioning for utility to the plane of building erection ennobled by beauty despite the utilitarian purpose of the structure.2 Material utility has its origin in primitive instinct; the science of beauty is acquired.

Source and History of American School
Architecture
Architecture generally, as we see it today, is not original with Americans but has been borrowed from Europe.3 In Europe the early school was very closely associated with the church; in America a similar association obtained. It is thought that it was due to this association that school and church came finally to have so much in common in their building structure.4 Spires and towers crowned both alike. The pulpit was parent to the rostrum; the steeple suggested the school belfry. In the beginning this mimicry by the school took only the simplest and most prominent features of its model and persisted in this practice until the time immediately following the Civil War.5

Immediately following the Civil War a new inspiration seized upon the popular imagina-Interest in education and the general state of prosperity in the north encouraged the erection of new and more ornate schoolhouses. Towers, cupolas, and spires vied with Gothic windows and wooden scrollwork; balconies, pillars, winding stairs, and mural decoration were lavishly furnished.⁶ Variety and novelty in ornamentation and design characterized the period closest to the great conflict.7

Brown, C. B.—The Fine Arts, p. 51.

Bloomfield, R.—The Mistress of Art, p. 3.

Parker, F. W.—Art in Everything, Proceedings of N. E. A., 1900, p. 510; also Ayres, M.—School Board Journal, Vol. 54-55, July, p. 44.

Ayres, M.—American School Board Journal, Vol. 54-55, July, p. 26; also Monroe, P.—Cyclopedia of Education, Vol. I, p. 183.

Ayres, M.—Op. cit., Sept., p. 25.

Ayres, M.—Op. cit., Sept., p. 25.

Ayres, M.—A Century of Progress in Schoolhouse Construction. Am. Sch. Bd. Jr., Vol. 54-55, July, p. 45.

It was very near the present day that the ornamentation of the post bellum period became an educational tradition.8 Out of the great variety, introduction, and elimination, certain types of design and ornamentation settled into a traditional mode and expectation. Innovations found an augmentation in the natural impetus furnished by a rapidly increasing population. Belfries and porches multiplied over wide expanses of territory in various sections of the country.9 A further impetus was added through the movement to substitute the town system of school management for the district. The force of this movement overrode apparently all ideas of utility in its effort to assimilate urban style.10

The condition and practice kept up until almost within a score of years before the European war. The reaction that set in did not halt completely the practice of ecclesiastical adoption by the schools of building design and ornament but did emphasize the more rational planning of structures with reference to their specific use or uses.¹¹ In this way schoolhouse planning has made greater progress than has schoolhouse designing.

A consideration of style, past and present, in American schoolhouse construction shows the following types:

The octagonal form.12

(b) The box type. 13

The colonial type.14

The mission or Spanish type. 15 (d)

The factory type.14

The collegiate Gothic or Jacobean $type.^{14}$

(g) The Flemish type.14

(h) The Italian Renaissance type. 14

(i) The classic type.14

The bungalow type. 15

The colonial type is found chiefly in the east; the factory type in the central west; and the classic and Spanish types in the west and southwest. Except the octagonal type, which no longer exists, the other styles are scattered over the country and may be found in almost any state. The bungalow type has only recently made its appearance.

These styles may form the basis for making a choice when school officials and architects are confronted with the problem of constructing a new building, or these officials may make use of their own imaginative and creative powers.16 If the latter method be chosen, it will be well to remember that the principles of architectural design are not affected by specific differences of style;17 that domestic character should be taken as a key to the design;18 that due consideration should be given to the style used in existing buildings and the new school made to harmonize with them;19 that the architect should always create within the limitations of acceptance and understanding;20 that

the less known past of the community is a source for suggestion for style;21 that the local community most likely has talent in this work equal to any that may be imported;22 that public indifference to taste is painfully manifest on all sides;23 and that architecture is not an easy art.24 A knowledge of these facts should spur the school official who is fully conscious of the weight of moral responsibility that rests upon him to the very best he is capable of achieving.25

Determinant Factors in Style

Into all building style certain factors enter as determinants. These limit the range of possibilities and thereby perforce demand careful and constant consideration while planning and designing. It is obvious that the interior spaces necessarily condition the subdivisions of the exterior mass and thereby affect architectural composition.26 It is only by artistic disposal of these subdivisions that beauty of structure can be achieved.²⁶ Then the responsible officers should in their consideration and chore of design perceive the very close relationship that beauty bears to form in building erection as that form is determined by the activities to be carried on within the completed structure.27

Ornamentation

All effort to compensate for the lack of true architectural artistry by gaudy and useless ornamentation should be severely condemned.28 While ornament loses dignity as it becomes superficial,29 aesthetic feeling, nevertheless, may demand the addition of features for which there is no material need.30 Although this is true. schoolhouse designers should keep constantly before them in their labors as a guiding principle, the truth that style and general pleasing effect ought to be accomplished through a proper treatment of the large mass rather than through elaborate, costly, and useless ornamentation.31

Mindful also should these persons be of the aesthetic assistance potentially inherent in mouldings, base courses, cornices, door frames, and window frames, although they do not fall within the classification of ornamentation properly speaking.³² A thoughtful and skilful architect will turn the presence of these necessities to the advantage of his art by causing them to enhance the beauty of his product.

Utility as a Factor

Utility must enter as a factor into the aesthetic treatment by the architect of his building. Nevertheless, the whole spirit of art is opposed to the idea of complete subordination to utility.33 The dignity, sublimity, strength, admiration, and awe of a building generally belong to the ideal of architecture; not to its utilitarian side.34 Merely art for art's sake cannot be indulged. In truth, there should be no conflict between artistic appropriateness and educational usefulness; but on the contrary the beauty of the building should be in close and vital relation to the use and structure desired.35 Then, as a guiding principle this should be held in view: Give use and structure first considera-

^{*}Ayres, M.—A Century of Progress in Schoolhouse Construction, op. cit., July, p. 45.

"Sargent, W.—The Evolution of the Little Red Schoolhouse. Sch. Rev., Vol. 11, p. 440; also Monroe, P.—Cyclopedia of Education, Vol. 1, p. 183.

"Schoolhouse. Sch. Rev., Vol. 11, p. 440; also Monroe, P.—Cyclopedia of Education, Vol. 1, p. 183.

"School Building. (Reprint from Design in School Building. (Reprint from the November 'Architect," 1920.)

"Barnard, H.—School Architecture (1854), p. 76; also Sibley, E.—Why I Prefer the Colonial Style. (Reprint from the Am. Sch. Bd. Jr.)

"Ayres, M.—Op. cit., July, p. 26.

"Betelle, J. O.—Architectural Styles as Applied to School Buildings. Sch. Bd. Jr., Vol. 58-59, pp. 28, 27, 28, 75; also Sibley, E.—Why I Prefer the Colonial Style, Vol. 66, p. 68.

"Mead, S. W.—The Bungalow Schoolhouse. Sch. Bd. Jr., Vol. 57, July, p. 27.

"Schaefer, C. H. B.—Styles in School Architecture. Sch. Bd. Jr., Vol. 44-45, Sept., p. 20.

"Brown, C. B.—Op. cit., p. 280.

"Stbley, E.—The Importance of Good Design in School Buildings.

"Betelle, J. O.—Op. cit., p. 26.

"Stbley, E.—The Yelfer the Colonial Style; also Schaefer, C. H. B.—Op. cit., Sept., p. 20.

In view: Give use and structure first considera
"Schaefer, C. H. B.—Loc, cit., Sept., pp. 20, 54,

2*Schaefer, C. H. B.—Loc, cit., Sept., p. 20,

2*Barnard, H.—Op, cit., p. 35; also Betelle, J. O.—

Op, cit., p. 26.

*Brown, C. B.—Op, cit., p. 277.

2*Schaefer, C. H. B.—Loc, cit., Sept., p. 20,

2*Brown, C. B.—Op, cit., p. 278.

2*Dresslar, F. B.—School Architecture, p. 424.

2*Dresslar, F. B.—School Hygiene, p. 66; Marks, P.

L.—The Principles of Planning, p. 118; Betelle, J. O.—

Op, cit., p. 275; Ittner, W. B.—School Architecture,

Sch. Bd. Jr., Vol. 44-45, Sept., p. 59; Brown, C. B.—

Op, cit., p. 270.

2*Schaefer, C. H. B.—Loc, cit., p. 21.

3*Betelle, J. O.—Op, cit., p. 273.

3*Betelle, J. O.—Op, cit., p. 75; Ittner, W. B.—Op,

cit., Sept., p. 59.

2*Brown, C. B.—Op, cit., p. 279.

2*Brown, C. B.—Op, cit., p. 279.

2*Brown, C. B.—Op, cit., p. 51.

3*Brown, C. B.—Ibid., p. 52.

3*Brown, C. B.—Ibid., p. 52.

tion, but let aesthetics bind them inseparably

Material as a Factor

Material likewise enters as a factor in the aesthetic treatment of his building by the architect. There is a close relationship between the smaller features of a structure, the material to be used, and the style to be employed. Whatever is done there will be material, structure, and style.37 The builders will determine each within the limitations inherent in the combination of these elements.38

The Building-Function a Factor

A further factor in the aesthetic treatment of his building by the architect is the buildingfunction. The appearance of a school building should per se reveal to all the secrets of its purpose,39 Schoolhouses should look like houses for school. Kindergarten buildings should look like buildings for "Die Kinder." Elementary schoolhouses should look like houses wherein children acquiring the tools of learning study. Junior high schools should look like schools wherein pupils in the transitional and exploratory period of their youth and schooling are preparing for real secondary study. The senior high school should show that its pupils are senior in their work to those of the lower schools, but junior to college students. Special and vocational school buildings should each proclaim in appearance its specialty or vocation.40

Architecture as a Social Index

Whether architecture is treated consciously or unconsciously for effect of design, the truth is that it stands as a social index. The buildings of each generation tell him who reads aright the character, intent, and purpose of him who erected it. Architecture, then, is objective history. The very social and educational life of the people is revealed in its form and features.⁴¹ The soul of a community is laid bare in the degree of beauty in design in its public buildings. If that soul be cold, harsh, and forbidding, the public buildings of its people wear the stamp of their origin; if beautiful, gentle, as it were, and appealing, they likewise tell that their makers were people of souls of beauty, gentleness, and attraction.42 Communities are mirrored in their own work when they are masters of their own destiny.

Psychological and Social Significances

Moreover, architectural beauty has both a psychological and a social significance. Aesthetic monumentalism impresses the social mind with consciousness of power.43 Beauty of design in schoolhouses as it affects the minds of both pupils and parents enhances a respect for and belief in education and a desire to further it.44 A beautiful building excites pleasure in those who view it and thereby attracts them to it.⁴⁵ Beauty of structure influences the development of natural moral qualities.⁴⁶ The style of art in which the schoolhouse is finished determines to some extent the taste of those who build later in the vicinity.47 Beautiful buildings reflect themselves in the refinement and good taste of the community.48 Community housing conditions are materially influenced by

school housing practice.49 Beautiful schoolpromote the development of wise, houses healthful, and progressive sentiment in the community.50

Some Aesthetic Architectural Criteria

With these facts in view and with a will to profit by a knowledge of them, the layman should adopt a definite and appropriate set of principles for judging the aesthetic efficiency of the architect's structure. In this regard it is well to know that imposing mass conveys the esthetic impression of the sublime;51 that architectural beauty is due to composition; that is, to the breaking up of the whole into subsidiary portions related to each other and to the mass on some pleasing scheme of proportion;52 that balance can be secured only by arranging many subordinate factors harmoniously about some principal factor; that arrangement is begun by observing a few details characterizing some one form to which is given what is sometimes termed principality;53 that order is obtained by the connection of kinds of forms on the basis of resemblance in series;54 that the conception of many different things as one gives unity;55 that unity can be achieved only through a process of comparison;56 that when things have no order there is confusion of variety;57 that only advanced instances of artistic composition beyond mere symmetry or mechanical regularity gives harmony of parts not equal, but related to each other according to a subtle scheme of

proportion,58 and that complement produces unity in a natural way from things different. Counteraction applies the same principle underlying complement to things that are not complementary by nature; and balance applies the same to things that may be neither complementary nor counteractive, in such a way as to give a more satisfactory appearance to the form by adding to it an effect of equilibrium.59 Conclusion

All that has been said shows that the old adage, "De gustibus, non est disputandum," has reigned too long in American schoolhouse construction. Taste can be created. Therefore, to construct a school building that shall have the maximum of simplicity, utility, and withal beauty, is a great and important obligation of schoolmen, school boards, and school archi-

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Rosewood Elementary School, Los Angeles One of the 200 Public School Buildings Erected in the Past Two Years in the Southern California Metropolis

O. H. Barnhill

When, two years ago last spring, the Los Angeles board of education decided to erect a thirteen-unit elementary school building at the intersection of Rosewood and Alfred streets, many citizens held up their hands in horror at what seemed to them a wanton waste of tax-payers' money. The location was eight miles west of the business district, out in the middle of what but yesterday was an old barley field between Hollywood and Culver City.

Enterprising subdividers had opened up streets and here and there a few houses had been built. Many years would elapse, however -declared the wiseacres-before there would be children enough in the district to fill a building anything near as large as the one planned. There were no nearby industries and the location did not seem particularly inviting from a residential standpoint, being a lowlying adobe flat not far from the La Brea oil

The purchase by the board of an entire block of land for a school site, at a cost of some \$70,000, was especially condemned as an unwarranted expense. So many overcrowded older districts had first to be provided with buildings that the Rosewood school was not begun until last January. It was finished and accepted July 8th, furnishing a good example of speedy, first-class construction.

When the school opened in September, only 25 months after the bond vote, what a transformation had taken place! Miles of graded streets, thickly studded with small but beautiful occupied homes flanked with flowers, shrubs, and green lawns, were exhibited to the view.

The great empty building, which was expected to stand as a monument to the folly of an over-optimistic school board, was filled to overflowing the day school opened. Within a month the population of the district had increased to such an extent that 75 new pupils appeared for admission.

A total of 425 boys and girls now attend Rosewood school, nearly 50 pupils being crowded into some rooms. Two classes are accommodated in the auditorium, while the teachers have given up their rest room to another class. Not to be outdone, the principal, R. M. Cartwright, permits the orchestra to practice in his office. Two bungalows have been promised to relieve the congestion, but it is difficult to provide a sufficient number of even temporary buildings to shelter the ever-increasing multitude of Los Angeles school children.

Rosewood school cost \$78,000. The building is two stories high and contains eight classrooms, an auditorium, teachers' rest room, principal's office, and store room, together with the usual hallways, toilets, and closets. It was planned by the business department of the board of education, which supervised its construction.

Another feature of the Rosewood school is the ornamental, artificial stone work which graces the exterior, occupying the entablature on the east and south sides of the building, and surmounting the large window in the south end of the auditorium. Faces of ancient knights look with stony stare upon strange, new-world scenes, reminding the youth of those countries which cradled art and learning.

³⁶Brown, C. B.—Ibid., p. 277.
27Brown, C. B.—Op. cit., p. 279.
36Brown, C. B.—Ibid., pp. 283, 285, 288.
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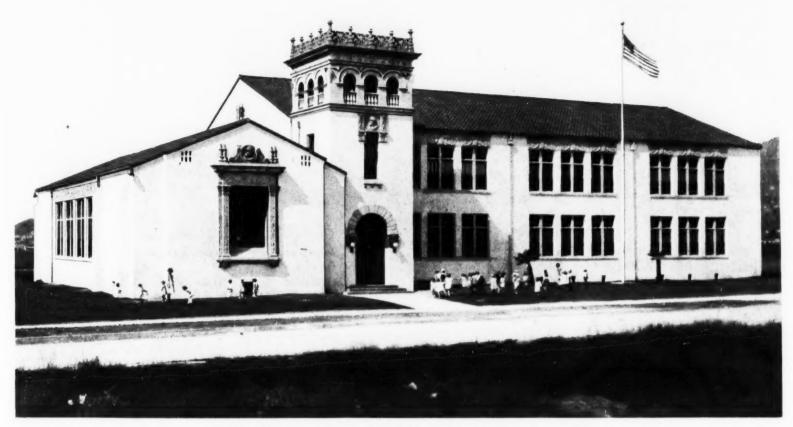
43Brown, C. B.—Op. eit., p. 52.

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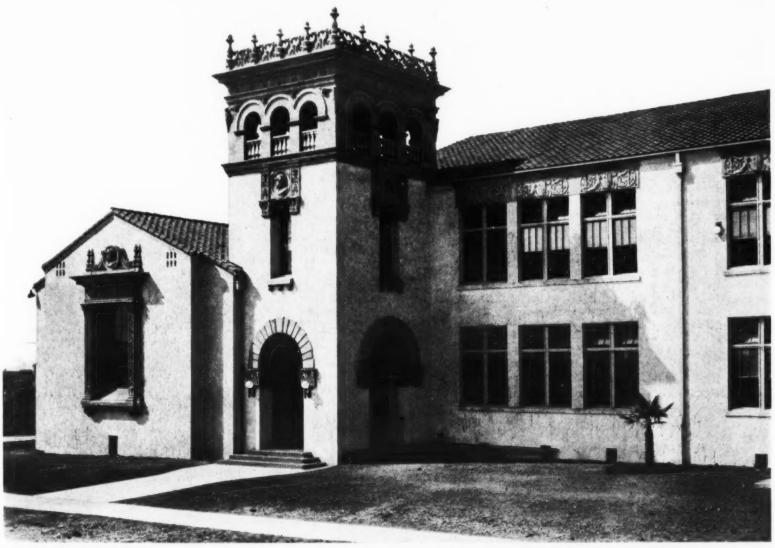
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⁴⁶Parker, F. W.—Op. cit., p. 512; Sargent, W.—Op. cit., p. 441.
⁴⁷Schaefer, C. H. B.—Op. cit., Sept., p. 20.
⁴⁸Ittner, W. B.—Op. cit., Sept., p. 59; Barnard, H.—Op. cit., p. 16; O'Shea, M. V.—Op. cit., p. 39.



ROSEWOOD AVENUE SCHOOL, LOS ANGELES, CALIF.
Plans Prepared by the Business Department of the Los Angeles Schools.



DETAILS OF THE BELL TOWER OF THE ROSEWOOD AVENUE SCHOOL, LOS ANGELES, CALIF.

These figures are an exception to Superintendent Dorsey's rule not to place such ornaments on Los Angeles school buildings. reason for this stricture is that such figures are apt to rouse prejudices. For example: the American Legion recently objected to the placing upon a Los Angeles school building of two bas-relief stone lions, because the latter resembled the British coat-of-arms. The architectural office therefore has been ordered to replace the offending animals with geometrical designs or other ornaments having no particular significance.

The Rosewood school is built in the Italian renaissance style of architecture. This type was chosen because it is peculiarly adapted to local climatic conditions and because the style is the most popular at the present time in southern California.

The red tile roof is durable and beautiful, while the plastered brick walls make the building warm in winter and cool in summer. Because of the great aridity of the atmosphere, there is no danger of dampness. The last coat of outside plaster is finished rough, a curved sweep of the trowel giving the surface the appearance of a pleasing maze of unfinished circles.

Solid masonry and reinforced concrete make the building practically fireproof. The hallways are absolutely so, the ceilings and floors being of concrete and the walls of the same material, thirteen inches thick. The ceiling is slightly arched, giving it a unique, barreled appearance. To guard against possible injury of occupants by fire, entrance and classroom doors are made so they can be opened from the inside. They may be locked to prevent anyone entering from the outside, but not to prevent an occupant from escaping.

It is the policy of the board to locate schools apart from busy boulevards on quiet streets, not only to eliminate noise, but to lessen the danger of accidents to children crossing thoroughfares. The Rosewood school is located two blocks from Melrose avenue, a coming main artery of travel.

The structure is located in one corner of a rectangular site, close to the sidewalk, in order to leave as much playground space as possible and to minimize the cost of landscaping and caring for school lawns and shrubbery. horticulture students of the Los Angeles schools grow sufficient flowers, vines, and shrubbery to beautify the school sites in the city.

The Rosewood school is placed in the preferred position, north and south, in order to give the classrooms east and west exposures. An east light is considered best; west, south, and north are next in desirability, in the order named.

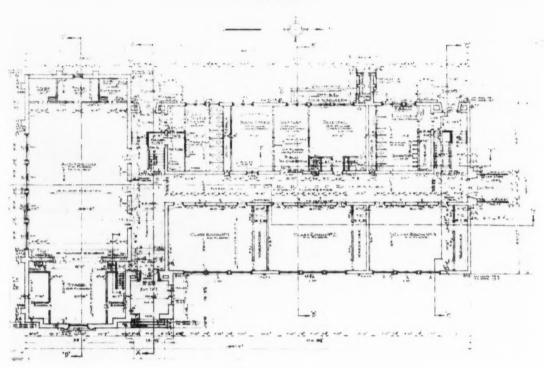
The auditorium is placed across the south end of the classroom section of the building. At first thought, one wonders why classrooms were not placed across the other end of the building, since such rooms would have windows on three sides. This was not done—and in similar cases never is-because of the likelihood of an addition afterwards being affixed to that portion of the building. Under the plan now followed it is comparatively simple to extend a school building, requiring only the lengthening of the central corridor and addition of classrooms.

All classrooms are 23x30 feet, the standard adopted by the board. These particular dimensions were not chosen because they approximate the amount of space deemed most desirable, but largely because lumber cuts to the best advantage in constructing rooms of these dimensions.

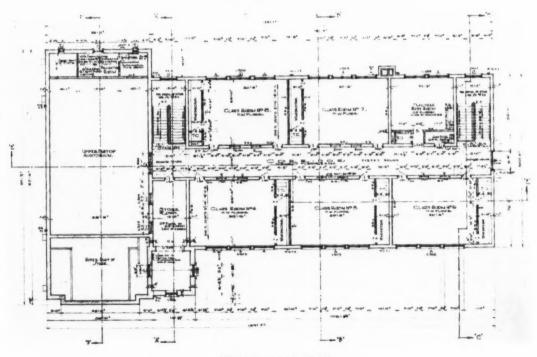
A standard classroom, together with the necessary closet and hallway space, constitutes one unit, a figure much used in estimating the size and cost of new buildings.
(Concluded on Page 139)



AUDITORIUM



FIRST FLOOR PLAN



SECOND FLOOR PLAN.
ROSEWOOD AVENUE SCHOOL, LOS ANGELES, CALIF.



WEST BEND HIGH SCHOOL, WEST BEND, WIS.

Foeller, Schober, & Stephenson, Architects, Green Bay, Wis.

THE WEST BEND HIGH SCHOOL, WEST BEND, WISCONSIN

The high school at West Bend, Wisconsin, is located on a sloping site of 25 acres. It has a cubical content of 1,050,000 cubic feet and accommodates 720 pupils. It was erected during the past year and was completed in September, 1926.

The building is of fireproof construction. The bearing walls are of reinforced concrete, while the exterior walls are of face brick, with Bedford stone trimming and asbestos roof. The interior finish is oak throughout. The floors in

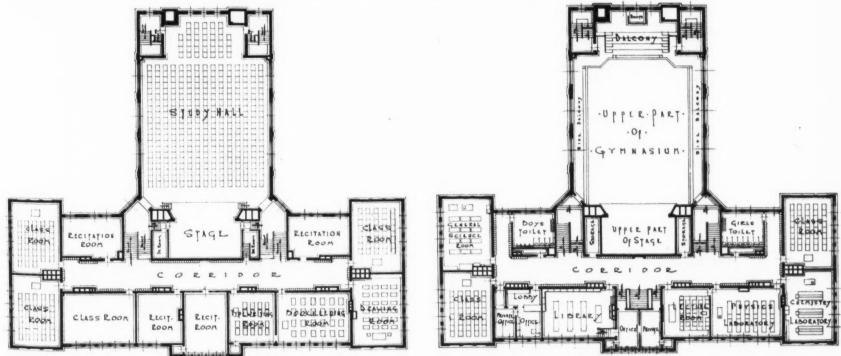
the classrooms, gymnasium, and assembly room are of maple; terrazzo is used on the stairs and in the corridors and toilets.

The gymnasium serves as a community auditorium and seats 900 persons. It is provided with a fireproof balcony and separate entrances so that it may be isolated from the school proper whenever it is desired.

The building is heated by a direct-indirect steam heating system, with fan-blast ventilation and air tunnels of concrete. The toilet equipment consists of vitreous china fixtures and marble showers and toilet stalls. Electric lighting is provided throughout the building, and an electric program clock system and fire alarm system have been installed.

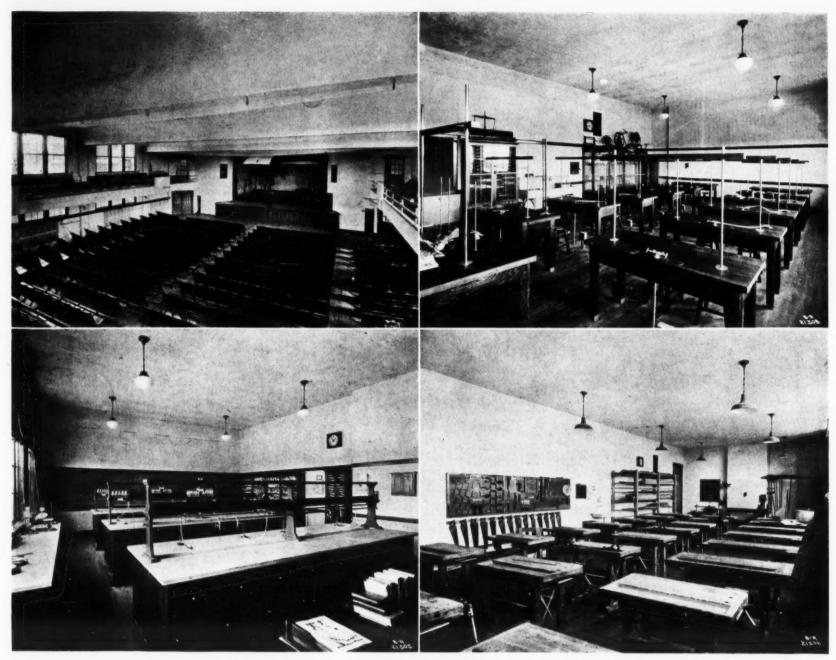
In the erection of the building, provision has been made for future extensions on each end without any changes in the present arrangements.

The building cost, exclusive of site, landscaping, and equipment, a total of \$230,000, or 22 cents per cubic foot and \$320 per pupil. The heating and ventilation cost \$30,150; the plumbing \$13,000; the electrical work \$12,800, and the general construction work \$174,500.



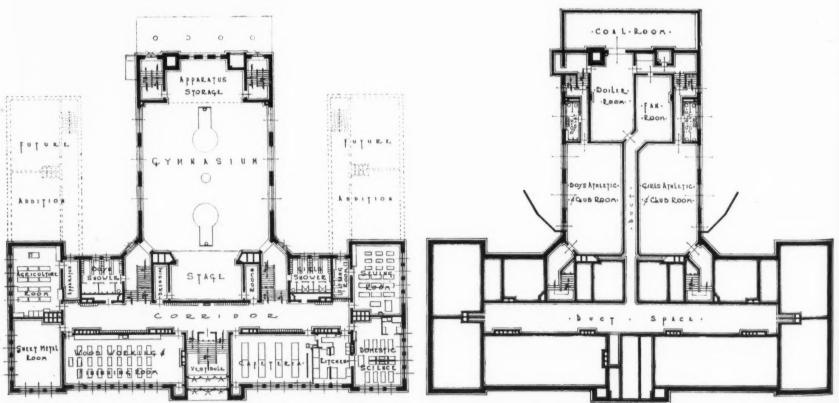
SECOND FLOOR PLAN.

WEST BEND HIGH SCHOOL, WEST BEND, WIS. Foeller, Schober & Stephenson, Architects, Green Bay, Wis.



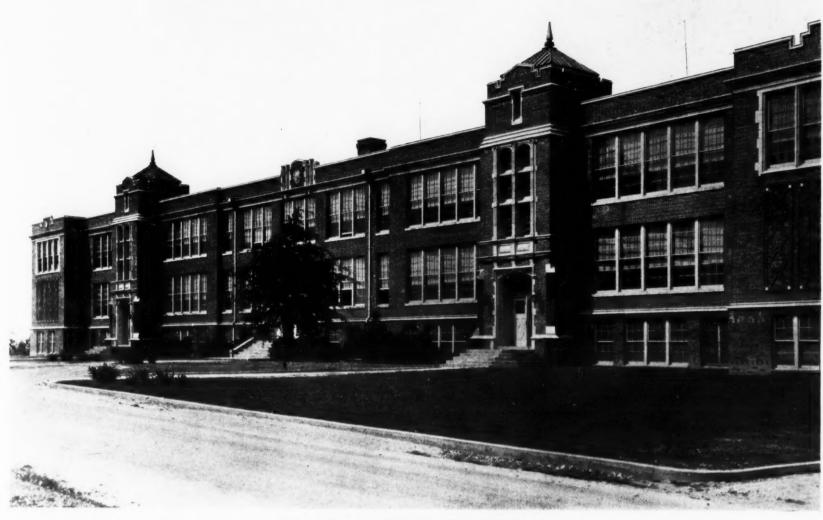
WEST BEND HIGH SCHOOL, WEST BEND, WIS.

TOP: Auditorium and Physics Department. BOTTOM: Chemistry Laboratory and Manual Training Shop.



GROUND FLOOR PLAN.

WEST BEND HIGH SCHOOL, WEST BEND, WIS. Foeller, Schober & Stephenson, Architects, Green Bay, Wis.

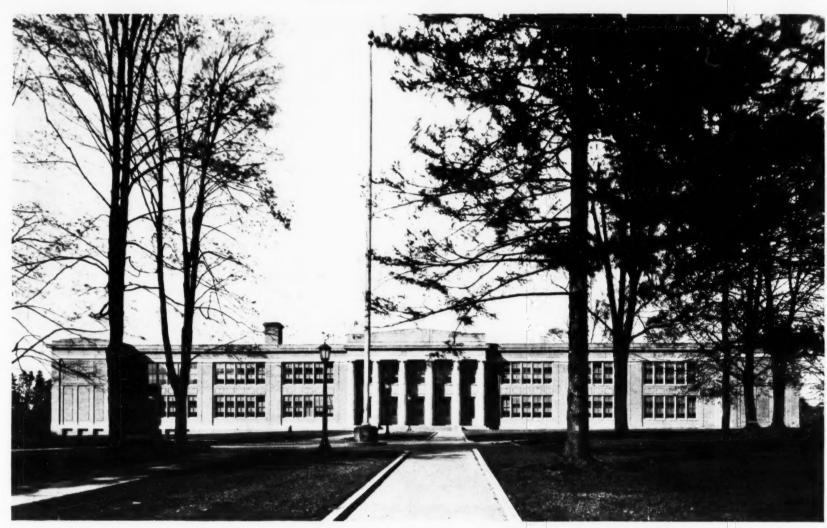


VOCATIONAL SCHOOL, FRANKLIN, N. J. Guilbert & Betelle, Architects, Newark, N. J.



AUDITORIUM AT THE MADISON HIGH SCHOOL, MADISON, N. J.

Guilbert & Betelle, Architects, Newark, N. J.



MADISON HIGH SCHOOL, MADISON, N. J. Guilbert & Betelle, Architects, Newark, N. J.



ENTRANCE DETAILS OF THE MADISON HIGH SCHOOL, MADISON, N. J.

Guilbert & Betelle, Architects, Newark, N. J.



SAMUEL JONES JUNIOR HIGH SCHOOL, TOLEDO, OHIO. Edwin Gee, Architect, Toledo, Ohio.

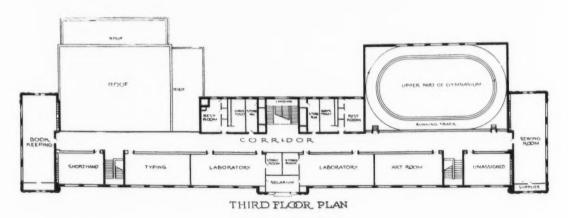


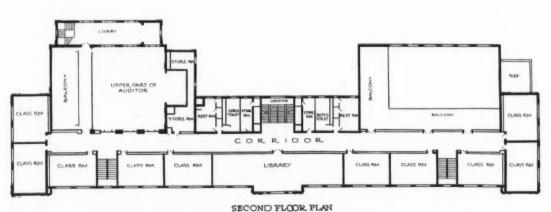
SAMUEL JONES JUNIOR HIGH SCHOOL, TOLEDO, OHIO. Edwin Gee. Architect, Toledo, Ohio.



ENTRANCE DETAIL OF THE SAMUEL JONES JUNIOR HIGH SCHOOL, TOLEDO, OHIO.

Edwin Gee. Architect. Toledo, Ohio.





FLOOR PLANS OF THE SAMUEL JONES JUNIOR HIGH SCHOOL, TOLEDO, OHIO, Edwin Gee, Architect, Toledo, Ohio.

THE SAMUEL JONES JUNIOR HIGH SCHOOL, TOLEDO, OHIO Designed by Mr. Edwin Gee, Supervising Archi-tect of the Board of Education

The new Samuel Jones Junior High School represents a type of complete school building intended to serve not only a broad educational program for children of the seventh to the ninth grades but also a social and community center program. Located on a triangular plot, the architect has made full use of the opportunity for a dignified treatment of the auditorium entrance as well as of the main front.

The building is almost wholly above ground so that the ground-floor windows are full height and this floor receives equally as good light as the upper floors. The ground floor is devoted to shops and workrooms, to the domestic science department, and to a large cafeteria. Separate entrances are provided so that these departments can be used independently of the balance of the building, and so that materials and supplies can be brought in without using the main entrances of the building.

The first floor contains twelve classrooms, the main floor of the auditorium, the main floor of the gymnasium, the administrative offices, and other service rooms.

The second floor contains ten classrooms, a large library, the balcony of the auditorium, the balcony of the gymnasium, and various service rooms.

The third floor contains the laboratories, art room, sewing room, and special rooms for commercial subjects.

The building is partially wall-bearing, with certain portions of steel skeleton construction. The walls are of brick up to the level of the first floor, and above that point, they are of brick and load-bearing hollow tile, with brick around the openings and for all bearings.

The floors are of welded bar-joist construction, with $2\frac{1}{2}$ -inch concrete slabs on top and sleepers bedded in the slab. The roof is the same as the floors, with the exception that over the auditorium and gymnasium, 13/4-inch matched plank has been laid over the purlins. The exterior is faced with rough brick and terra cotta. The exterior windows are of solid steel of the counter-balanced type. All floors are finished in maple, with battleship linoleum, with the exception of the toilets which have tile wainscots and floors.

The heating is by means of a steam plenum ystem, with reheaters at the base of the flues. There is no direct radiation in the rooms, except where necessary for plumbing. troduced into the rooms at the outside walls at the level of the baseboard, through cast iron grilles, which take the place of the baseboard at these walls. Separate fans are located in the auditorium and gymnasium so that these portions of the building may be used without operating the entire heating plant for the building.

A complete system of temperature control has been installed, using dampers for pneumatic operation by switches from a central station in the engine room. There are two plants for heating the house water. One is intended for the cafeteria and domestic science department, which require extremely hot water, and one for the general house service and shower baths. These plants are operated with gas-fired boilers and by coils for heating from the main plant of the building.

The cost of the building, without equipment, was \$617,500. Figured on the cubic cost basis, the cost per cubic foot was 28.77 cents. The building has a capacity of 1,200 students.

The architect is Mr. Edwin Gee, supervising architect of the Toledo board of education.

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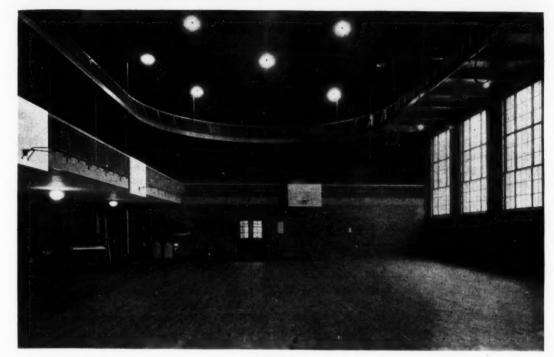
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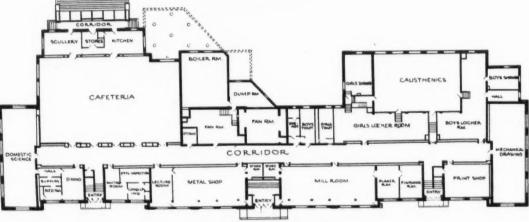
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GYMNASIUM.



FIRST FLOOR PLAN



GROUND FLOOR PLAN

SAMUEL JONES JUNIOR HIGH SCHOOL, TOLEDO, OHIO. Edwin Gee, Architect, Toledo, Ohio.

SOME SCHOOL BUILDINGS I HAVE INHERITED By a School Superintendent

Three-fourths of the public school buildings in America are a discredit to our state and I have in mind not only local governments. the cheap, flimsy buildings so common to rural sections, but also many structures in centers of industry that cost enough to make them what they should have been. Schoolhouse architecture has only begun to play its real part in the education of the masses, and ahead there is a great future for the competent school architect. For some time now, school people have recognized the value of this specialist in architecture, but the general public and special building committees have been remiss in seeing the absolute necessity of school architects and their large contribution to American education. The brief accounts here set down add concrete

proof that there is a wide and ever-growing field for their work.

One who begins supervision duties in a virgin field is almost sure not to inherit good school buildings. This was exactly my case. Among the three or four towns in my district there were more than a score of schoolhouses, but outside of two or three they were in bad shape. There had never been a superintendent before me. The ground had never been turned under and the school property had gone to seed, or to weeds, long before.

When I was a boy, salt was sold in wooden boxes. The Q—— School resembled one of those salt boxes, except that it was a trifle larger. The first time I opened the front door of this building I found myself in the midst of the school, because there was no entry. There was the door in front, and a single small

window on each of the other three sides, with here and there a whole pane of glass. The furnishings consisted of a kitchen table for the teacher's desk, one old chair, and a dozen of the cheapest double desks ever made. There were two tiny home-made blackboards, a tin pail and one cup. Think of the nerve I had to commit a young lady teacher, who had had a year or two at Wellesley College, to this rustic temple of learning. There was not a dwelling house in sight, and none really fit to live in short of a mile away. The salt box was perched on four posts, so the cold north winds blew against it on the bottom as well as on all the other sides. The yard was full of stones, but no one had ever thought of building a suitable foundation, and the door-step was a poorlyselected rock with so many sides to it that one had to watch his step when using it or pay the penalty.

C— was a prosperous village, but its school-house was a disgrace. My job there was plainly enough that of securing a new building as soon as possible. One morning, very early, near the end of my first year's service, I saw passing, the principal man of the town, so far as money and influence were concerned. He had a son in the school, and I thought had considerable latent civic pride, so I went after him, and insisted that he go with me to the outhouses. They were as bad as they could be, and I asked him what he thought of them for a village school. He had never been dragged in there before, and he was, of course, thoroughly disgusted. A new school building came along all right the next year, the best in the county.

I wanted eight rooms, but only got six. The result was that within two years another cheap wooden structure nearby had to be purchased and made over into a two-room school. If they had only listened to the schoolman and built as he suggested, the eight rooms would have been sufficient for twenty years to come for all their educational needs. Will building committees ever get educated up to the point where they are willing to concede to the schoolman on the job, that he knows the actual needs quite as well as anyone else? However, I had considerable satisfaction in helping to secure the fine six-room building.

The M—— schoolhouse, a gift to the town, was a model in every way. A gem of architectural beauty to begin with, it was also well adapted to school purposes. It had but one classroom, but the accessories of an up-to-date city school were all there. There were a furnace, good toilets, two spacious entries, a fire place, and slate blackboards. The lighting was good, allowing direct sunlight to flood the halls and schoolroom for a part of the day. This school was a living example of rural schoolhouse possibilities which should be widely emulated.

The S. C. School started long before my day as a four-room bug and later on grew wings, making it finally an eight-room moth. Then along came the prohibitive building period during the war, and several of the rooms were divided by temporary partitions of beaverboard and glass, so that the eight rooms were stretched to make eleven. When I first took over this old husk, there were the most unsanitary ground toilets one ever saw in operation. When we came to install sanitary flush closets, we found a false bottom about four feet above the bottom of the cellar. This pit had to be filled in at considerable expense. During the years of the old privies, we were singularly free from epidemics; then, after installing all the sanitary necessities, such as the flush toilets and drinking fountains, our troubles began with one epidemic after another, but through

(Continued on Page 140)

The Buying of School Equipment

Henry Eastman Bennett

Prevalent typical methods of buying school equipment are extravagant, archaic, and unbusinesslike; they are tangled up in red tape which hinders the intelligent selection of equipment, puts a premium upon inferior quality and sharp practices among salesmen and tends to keep the school supply industry on an unsound and uneconomical basis.

The typical methods to which we refer are somewhat as follows: A small part of the building fund is more or less definitely designated as "reserved for equipment," the amount having been determined by somebody's calculation, estimate, previous experience or guess. The matter is then dismissed until the building plans have been adopted, contracts let, building well under way and approximate time of completion fixed. So-called specifications for equipment are then prepared and sealed bids asked for "on all or any part thereof" with the privilege reserved of rejecting any or all bids, requiring a certified check to accompany each bid, or other restrictions. At the time specified, or after a few postponements, bids are opened and tabulated in "open meeting" attended only by members and competing salesmen, and each salesman is allowed five or ten or some other number of minutes to present and demonstrate his offerings. The board then goes into execu-

tive session to make awards. The Selection of Equipment

Any hasty impressions derived from the hurried talk of the salesmen or from members looking at the various offerings or "trying them to see how they sit," very naturally and properly have little or no weight in the selection. The judgment of the superintendent or business manager who has given the various articles more careful study, the reputation of the manufacturers or selling agencies for reliability and square dealing, or the impressions which salesmen have been able to make before the meeting. have and should have incomparably more influence. Presumably the cheapest article in a competing group is the least attractive and the most attractive is the most expensive. Members would prefer to buy the best at its price rather than the cheapest at its price, just as they would in buying a suit of clothes or an automobile, and they usually do if money is The problem becomes simply one of what they can afford to buy,

Now, these school board members are persons of superior intelligence and character, outstanding public-spirited citizens interested in getting the best possible educational facilities on the most economical terms. For months they have been giving freely of their valuable time in frequent meetings with architects, contractors, educators, and others in the effort to get the best possible building with the funds available. Educational ideals and architectural inspirations have had to be cut ruthlessly in order to get the building costs within the financial limits. The final contract price probably encroached a little on the equipment reserve. As the building progressed it was discovered that some of the last minute changes in plans necessitated unexpected alterations, and other minor changes were deemed wise. All these cost money and must be paid for out of the equipment reserve which was probably a minimum or inadequate to begin with. Wearied by long and conscientious efforts to achieve high ideals in building construction with insufficient means; worn by criticisms and the constant intrusion of all sorts of people with axes to grind; worried by an impending deficit, it is not surprising that the board's choice of equipment really resolves into a simple arithmetical problem of

dividing a small number of dollars by a large number of items to be provided and accepting the bids which come nearest to meeting the necessities. Pupils and teachers must be seated and have something to work with or the building is useless, whatever the anti-climax in ideals and enthusiasm which the equipment may produce. The low bid wins, not because anyone thinks it is the best bid but because there appears to be no alternative.

Price the Measure of Quality

In fact, the low bid on school equipment is presumably the worst bid. If bidding is sound and honest, price is the measure of the quality of materials, workmanship, and finish. If a good article is bid at a less price than a poor one, bidding is crooked somewhere or bidders unreliable. But if one school desk, for instance, is actually better than another, it should cost more and it is the better buy whatever the difference in price. The cost of equipment is so trivial as compared with the whole cost of the educational plant and teaching force, that if any sort of equipment adds to the efficiency of the teaching more than does another sort by any appreciable difference, it is the better bargain whatever the cost. Assume that one kind of equipment adds ten, five, or one per cent more to the effectiveness of the work of teacher and pupils than does another kind. Then it is worth more than the other by ten, five, or one per cent of the whole outlay for plant and teacher for the entire life of the equipment under consideration. Even this measure does not consider the immensely more important matters of hygiene and school pride.

In short, if any equipment is believed superior to others in hygienic or educational efficiency, the purchase of any other would be inexcusable extravagance regardless of any question of price. But, assuming that in these respects, there is no difference discernible to the board between two competing items, still the price ought to be a true index of the quality of materials, construction, and finish, and hence of the probable durability, low cost of upkeep, and length of satisfactory service. equipment is really the cheapest, and the cheapest is usually the most expensive in the long The problem should be, not what is the best that can be got with the money, but what

is the best that money can buy.

Because of long experience in just such situations, capable salesmen understand the conditions and factors determining the choice of the board better than do the members themselves. They would not last long as salesmen unless they did. It becomes necessary to push the article that seems most likely to win the award under the conditions which exist and in view of the particular competition which is to be met. It is useless to open questions of hygienic or educational superiority, for analyses cannot be developed, and sweeping assertions can be and are as readily made for the poorest article as for the best. Still less is it wise for a salesman to offer a choice of types, indicating fairly the special advantages and disadvantages of each, for thus he divides his energies and sets up competition between his own lines, while his wilier opponent concentrates his efforts on one. A sincere, conservative discussion of values would be equivalent to throwing away the business—at least so far as any discussion affects it at all. If the board does not know the relative values of the offerings before the "demonstration," they will not know them after it.

Splitting the Awards

Very commonly the board, recognizing that it is not able to decide on the relative merits of

the bids, diplomatically splits the award. "giving" the auditorium chairs, for example, to one competitor, the elementary desks to another and the high school seating to a third. Under such conditions selling becomes quite a game of shrewd deductions and sporting chances. It is an expensive game because of the time and expenses and risks of those engaged in it—and ultimately the customers must pay the bills. The board may accept the low bid or the high one, but the bidding is done by those who are in business for profit, and the expense of selling is included somewhere in the price paid.

The remedies for the situation are simple, almost obvious, and are already being adopted by many boards in spirit if not in form. First, there must be an absolutely separate and inviolable budget for equipment. It is well to designate the separation in the bond issue, or in making the levy or appropriation, in order that voters and council may appreciate the fact that when they assume the responsibility for the erection of a building, they also assume the equipment of it. This enables the public to better understand the problems of the school board and forestalls criticism, suspicion, and wild talk of what became of the last fifteen or twenty per cent of the fund which did not go into the building. The equipment fund should be as distinct from the building fund as is the maintenance or salary account. Each should stand on its own feet and neither should be permitted under any circumstances to encroach upon the other.

It is possible for the educational experts to make a thorough study of the best equipment for various purposes, to secure opinions of teachers and specialists, to visit other schools, and to make intelligent recommendations within definite limits instead of asking for everything in sight with the expectation that whatever they ask for will be cut 25 or 50 per cent, or ignored altogether. There can be no cooperation without a definite basis upon which to cooperate. Careful and conservative estimates cannot be expected unless there is a probability that they will have a meaning when completed.

Budget Makes Early Buying Possible A separate budget makes early and unhurried buying possible. The custom of waiting until building costs are settled and ordering as late in the summer as possible for delivery in time for opening of the school in the fall, has long kept the school equipment industry on a seasonal basis. Factories and distributing agencies are forced to run on a skeleton organization during a large part of the year, and then work overtime with a hastily assembled crew during the rush season. The idle months of the plant, the poor workmanship, poorly prepared materials, break-downs, uncertainties and waste of hectic production in the rush season, enormously increase the cost of products both in cash outlay and in inferior quality of goods. Customers must pay the bill in one way or an-Good furniture cannot be produced other. hurriedly. Months are required to convert iron ore and forest trees into furniture and only steady production can do it efficiently or economically. Only the concerns with enormous financial, storage, and distributing facilities can stabilize this seasonal demand, economically produce reliable furniture the year round and have it ready for delivery on short notice. Even these are often constrained to decline rush orders which would upset their normal distributing machinery.

Guarantees, even though covered by certified checks, amount to little when it is the purchaser who is facing the emergency. It is too late to consider whether the shipment is up to expected standards of quality when children are waiting to be seated and taught. In any case, guarantees with the costs and chances and possible litigations involved are expensive, and sooner or later must be paid for by the purchasers. As surely as a forced sale sacrifices the interests of the seller, so surely forced and hurried buying is always a disadvantage to the buyer. It is also a disadvantage to the seller, but it offers a premium on sharp practices among the irresponsible ones. With a fixed budget, equipment orders may be placed at any time after the architect's plans have been approved.

Advantages of Early Buying

Early and leisurely buying from a fixed budget not only gives the board every advantage in the way of prices, terms, and the assurance of quality of the goods purchased; not only does it eliminate the confusion, mistakes, waste and worry incident to hasty substitution of cheaper articles—the sacrifice of ideals to financial exigencies; but it affords an opportunity to give genuine consideration to the needs of pupils. After all, the hygienic design, sanitary qualities, and educational efficiency of the equipment should be the decisive considerations and these are only too often utterly lost sight of in the final slashing and juggling of estimates and funds. For example, there is nothing in the life of a child, except the clothing he wears, which enters into such close and insistent contact with him during his waking hours, as does his school desk. Nothing else which the board provides so positively and persistently affects his permanent health, his comfort and contentment in school, his school pride and progress, his standards of cleanliness, refinement, and personal neatness. The imposing façade and dignified approach to the building, the beautiful corridors and auditorium, the finish of walls and woodwork, and other factors of elastic building costs are important enough; but in importance to the child and his development they do not compare with his relatively inexpensive school desk. Yet, all over the land there are handsome new buildings disfigured by dilapidated old desks, or by cheap, ill-proportioned and shoddy new ones; the pupil's pride in the elegant shell destroyed by his immediate contacts: educational enthusiasm for the building petering out in an anti-climax of discontent with the seating; all because of the failure to create an inviolate equipment budget. If either must encroach upon the other, it would

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be wiser to secure ideal equipment first and build with the money that remains.

The other necessary remedial step is to substitute expert buying in an open market for the archaic device of sealed bidding on so-called specifications. The trouble with the specifications is that they do not and cannot specify the elements which determine values and should govern price. The quality of a school desk, for example, is determined by its design and by the facilities, standards, and policy of the manufacturer, long before the specifications for any particular job are prepared. The high grade manufacturer will not make his products cheaper, and the others cannot make them better, because of anything in the specifications or bid. "Specifications" usually indicate merely the number of units of each size and general type required, with perhaps some particular make "or equal" indicated. But the whole question of price should be in this matter of equivalence.

The situation is not at all comparable with the specifications for the building because each building sets its own standard of value; materials and workmanship are provided after the contract is let and upon the basis of the specifications, and there is competent inspection on behalf of the school board to insure that specifications are adhered to. Building contractors bid upon the specifications but sellers of equipment must bid upon the previously determined values of their products. Equipment specifications are and ought to be merely information lists as to the prospective purchase.

Sealed bidding is an antiquated device, often fastened upon the school board by law, and perhaps still proper to the letting of building contracts. It was intended to insure violent competition among bidders and to prevent dishonesty among those who expend public funds. Neither of these aims is necessary, or desirable, in the purchase of equipment, nor is either accomplished by the sealed bid formality. That it is only a formality is obvious from the fact that boards invariably reserve and exercise the right to bestow the business precisely where and how they think best regardless of competing bids. If only the low bids were accepted there would be no furniture of quality in the schools, which is by no means true. The moment quality is considered in comparison with price, the sealed bid becomes a farce and the board is free to use its best judgment, as it should.

Choice Based Upon Advice of Superintendent So far as the exigencies of the funds permit, the real choice is usually based upon the advice of the superintendent who is properly regarded as best knowing the needs of the schools and the

hygienic and educational worth of the equipment. This is buying on expert advice which is eminently wise. It should be remembered that school boards consist of able business and professional people who may be experts in any line but one-school equipment-the assumption in law and practice being that specialists in this line have financial interests which would disqualify them from serving in this capacity. Therefore, they should be guided in the main by professional advice. Another determining factor in the board's judgment is the reputation and financial reliability of the manufacturers and their representatives, the facilities for quality manufacturing and ability to make good on guarantees, not only at time of delivery but years afterward as well. Certainly buying on reputation and responsibility is most wise.

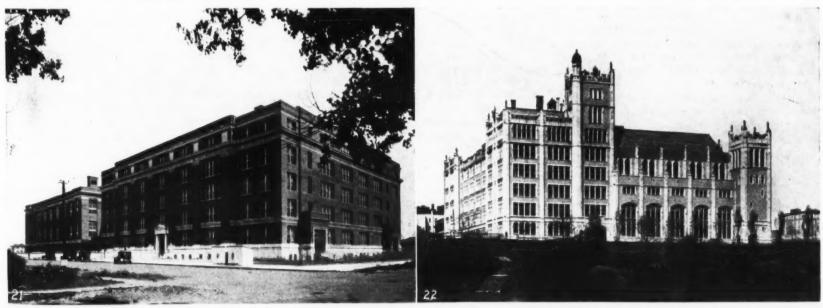
So, despite specifications and sealed bids, school boards normally do buy equipment according to their own good judgment based on expert advice and the reputation of manufacturers, and this is precisely what they should do. Judgment in these matters is not reached in an hour by looking at samples and hearing the talks of salesmen. It is the growth of years of experience, and weeks or months of special investigation, by the superintendent or business agent whose opinion is accepted. It is only the price which the board by its own procedure has kept secret from itself. And to what possible advantage? Does anyone believe that the price of school equipment is reduced by keeping a group of competitive salesmen running back and forth and putting up for indefinite periods at the best hotels? Or, that the purchaser gets the long end of the chance in the highly speculative game called "sealed bidding"?

the long end of the chance in the highly speculative game called "sealed bidding"?

The better class of American business is firmly fixed on the policy of one price, plainly marked, on established standards of quality and satisfaction guaranteed. We suspect the dealer who keeps his price secret until the last moment and then whispers it, and we had best know the business better than he does if we deal with him. If there is any kind of buying in which price juggling for the sake of a slight temporary advantage is unworthy of modern business (and

advantage is unworthy of modern business (and probably futile) it is when an established institution like a city is buying permanent equipment for their children's education. Buying at less than a fair profit to the seller is neither wise nor probable. Yet the unbusinesslike policy of buying standard articles on sealed bids, forces manufacturers and dealers into a policy of special pricing and sharp practices, and prevents the industry getting on a sure

basis of satisfaction and service.
(Concluded on Page 140)



21. JAMES MADISON HIGH SCHOOL, BROOKLYN, N. Y. 22. NEW YORK TRAINING SCHOOL FOR TEACHERS, NEW YORK, N. Y. William H. Gompert, Architect and Superintendent of School Buildings for the New York Board of Education. (See Pages 65, 66, 67.)



THE AMERICAN School Board Journal

WM. GEO. BRUCE WM. C. BRUCE

EDITORS

EDITORIAL

MURAL DECORATIONS IN HIGH SCHOOL BUILDINGS

Several of the more pretentious high school structures of the country have recently commanded special attention because of the decorative features that characterize them. Some of them have been enriched in artistic beauty by mural paintings. Artists of rare ability have presented in an allegorical setting some of the loftier aspirations of man, and have thus placed before the student body some of the ideals of human existence.

In welcoming the cultural touch which is given high school structures through mural paintings, it remains a question as to whether school administrators can consistently foster them as a legitimate public expenditure. So long as the needs in the direction of adequate and safe school accommodations of a school system are not fully met, it is doubtful whether elaborate decoration of any sort at public expense can consistently be engaged in.

That same pride which prompts a community to erect a school palace in the form of a modern high school, may also wish to indulge in cultural refinements of the decorative type. Where school authorities have met all the ordinary requirements of the school system in the way of adequate and comfortable housing of all the pupils, there can be no objections to an indulgence in the ornate and artistic.

On the assumption that in providing a modern school structure the observance of the artistic side of things, even at public expense, is permissible, it does not follow that mural paintings come within the purview of such a contention. That being conceded it follows, too, that a wonderful opportunity is afforded to private initiative in providing the more rare artistic things that may properly go into a school edifice.

The wealthy citizen who wishes to signalize his appreciation of the cause of popular education and at the same time render a service to that cause, is afforded the opportunity to make a most desirable contribution. The day has, no doubt, arrived when the modern high school will, more than ever before, house beautiful statuary and paintings in the thought of advancing the cultural ideals and standards of a rising generation.

CENTRALLY LOCATED SCHOOL ADMINISTRATION OFFICES A school administration building, specially

planned and constructed for the use of a city school system, centrally located, and well equipped, is still a rare institution in this country. Such buildings are encountered in but few American cities.

The board of education offices and the superintendent's headquarters, as applied to the larger and medium-sized cities of this country, are located in a variety of buildings. Sometimes you will find them in a downtown office building, sometimes in an old schoolhouse, and sometimes in the discarded mansion of an old

residence section, or in one of the newer school buildings away from the business district. The downtown office building may be conveniently accessible from all parts of the city, but may not afford the necessary space for the expeditious operation of the administrative service. The school building may provide commodious quarters, but may not be so centrally located as to be conveniently accessible to the school personnel and the patrons.

In many cities, the school headquarters are poorly housed. The offices are not arranged either to facilitate the work assigned to them, or to render them convenient for those that have to call on the executives who preside in The structure that was originally dethem. signed for a residence, office building, or school, is not readily rearranged for the use of a board of education headquarters, or designed to facilitate the school administrative labors.

There is every reason to believe that a school system involving the employment of a large number of persons and expending large sums of money ought to be provided with a suitable administration building centrally located where the business of the system may be efficiently managed.

Several American cities, however, have set the pace in providing school administration buildings that not only serve their purpose in a highly utilitarian manner, but at the same time are centrally located and most attractive in an architectural sense. The example set, no doubt, will be followed by other cities when the advantage of such structures is fully measured and appreciated.

SCHOOL ARCHITECTURE AND THE SITE

QUESTION
It may at this time safely be urged that the modern high school as exemplified in the United States, stands out as the finest architectural edifice in many American communities. It may have a rival in an old courthouse or a city hall, but the chances are that these do not excel the more recent schoolhouse structure in graceful design or beauty of outline. The more recent bank edifices and office buildings may, from an architectural point of view, be worthy of note, but being wedged in among our irregular group of buildings their setting is somewhat impaired.

On the other hand, an educational institution usually finds its location in a residential section where buildings are not crowded and where vegetation is permitted to lend attractiveness to the surroundings. The modern high school is usually so located as to be conveniently accessible from the residence district and not infrequently is located in the very heart of such district.

The tendency has been to place such structures on the edge of new residence districts, first, because the land is cheaper; second, because it contemplates the future growth of the school population. Again, there is another reason for seeking uncovered land areas and that is because the modern high school fosters athletic sports and for that purpose seeks larger school grounds. Where land immediately adjacent to the school cannot be obtained, the athletic fields are located at a distance on the outskirts of the town.

The site question as applied to high schools has recently undergone discussion from another angle. It is desirable, of course, to place an imposing structure upon an elevation, but is deemed equally important that a proper setting requires open spaces on all sides and front, in order to give full value to the architectural dignity of the structure.

At a recent gathering of artists and architects, the question of harmonious treatment of buildings and landscape surroundings came under discussion. It was pointed out that an architectural gem may be marred by being placed upon sites that are too small, or being crowded into a group of unsightly buildings.

The modern high school has become the architectural pride of the American community and a fine expression of educational progress. Let those who plan future high or graded schools bear in mind the injunction as to site, elevation, and the architectural setting. The people that stand ready to spend thousands of dollars for a beautiful structure ought not to spoil its setting because of the saving of a few hundred dollars. A pretty picture may be spoiled by being placed into an ugly frame. A dignified edifice deserves a pleasing surround-

THE CASE OF A STATE SCHOOL SUPERINTENDENT

In the annals of state school administration the Michigan case, whereby a state superintendent of public instruction was removed from office during the past year, excels in dramatic interest, and in some respects overshadows all similar previous upheavals.

The story, briefly put, is this: Thomas E. Johnson, state superintendent, accepted minor tasks of an educational character outside of his office for which he received a compensation. He also became financially interested in an insurance enterprise for which, it is alleged, he occasionally solicited business.

It so happened that the relations between Dr. Johnson and Governor Groesbeak were not exactly of a friendly nature, and when the governor was a candidate for re-election last fall, Dr. Johnson, it is said, was against him. The governor was defeated.

The governor soon after preferred charges against Dr. Johnson. Whether actuated by chagrin over his defeat or not, is not known, but the governor, it is alleged, swore that he would "get" Dr. Johnson. It was unlawful, he held, for the state superintendent to accept stipends outside of his office and to use the prestige of his position for private gain. The power of removal was vested with the governor, and after a hearing in which the charges were proven, Mr. Groesbeck removed Dr. Johnson from office.

Dr. Johnson was frank in stating what he had done, but claimed that he was entirely within the law in that he had fully complied with the duties of his office, and that there was nothing wrong in looking after his private interests, so long as these interests did not injure those of the state. Besides, the salary of \$5,000 paid him by the state was too meagre in the light of the modern cost of living and the official obligations placed upon him.

William L. Coffey, the deputy superintendent, was appointed by the governor to succeed Dr. Johnson. The latter has instituted quo warranto proceedings compelling Mr. Coffey to show cause why he should hold the office. That is the present status of the case.

No doubt, from the standpoint of school administrative service the case deserves attention. Certain phases of the same suggest similar conditions elsewhere in other states which may, under circumstances, be provoked into similar climaxes. One must be found in the political side of things, and the other in the financial.

When an educator plunges into the whirlpool of practical politics he must stand ready to accept the hazards which such a venture entails. He may land safely upon the shore lines, or he may go under in defeat. Dr. Johnson openly opposed one candidate for governor and with equal openness, supported the other. slipped when he forgot that, even if he succeeded in defeating the incumbent in office, the latter might have time enough left before retiring to retaliate with deadly effect. And that is just what happened.

The other phase of the case deals with the question of compensation. The salary of the highest school official of the state is usually lower than that commanded by the large city superintendent. High class educators, as a rule, do not seek state superintendency jobs. They look for a more peaceful occupation and a more lucrative remuneration.

When it comes to the question of private interests in their relation to public interests, it must be said that the public official cannot be denied the privilege of concerning himself in private enterprise. He must not, however, either neglect the service for which the public employs him, or unduly capitalize the prestige of his office for private gain.

SCHOOL DIRECTORS' SERVICE

The importance of the gratuitous service of a quarter of a million school board members in state, city, county, and village cannot be overestimated in the opinion of the *Journal of Education*. The paper quotes from an annual message of Dr. Josephine Preston, state superintendent of Washington, as follows:

"The business of operating the schools is entrusted to more than 6,000 men and women who gratuitously serve as members of our school boards. Your work is most important, for without the fine, free service of school directors, the state could never have attained its present high rank among the states of this great nation.

"Fine free service of the school directors is one of the noblest sentences of the year. There is an assumed professional aristocracy that seems determined to have a great gulf between professionalism and the public. There is no escape from the dependence of the teaching, supervision, and administration upon the elective leadership."

School directors will inevitably represent the elective leaders. If they do not grant professional freedom it is because the public thinks it is being professionally bulldozed instead of

being sympathetically led.

The schools are in close touch with all parents. The politically-inclined directors have no method of appeal to parents and the public. If the politically-inclined school directors out-influence the professional forces, it is an indictment or impeachment of the method employed by the professionals.

THE PASTIME OF JUMPING ON THE SCHOOL SUPERINTENDENT
The man who wields authority must expect op-

The man who wields authority must expect opposition. He may hew to the line of prescribed duty with consistency, with earnestness and with loyalty, but there is always some one who disagrees with his policies, his departures, his methods.

The modern school superintendent is clothed with greater authority than was accorded his predecessor. He is the manager of the school system over which he presides. He deals with the school board, the public, the press, the professional workers, and the pupil constituency. Surely, he faces many eyes and many minds, and his critics may be found within as well as without the school system.

As a rule those who work with the superintendent, know the man, his methods and objectives, are less inclined to criticize than those on the outside who are less competent to judge. The man on the inside appreciates the difficulties and knows something of the efforts made to overcome them. The man on the outside sums up isolated and fragmentary facts and hazards conclusions which may or may not be correct.

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Some of the attacks upon the school superintendent are interesting in that they reveal a trend of mind and disclose the conception some people have of the job of running the schools. A Chicago alderman recently "jumped" on Superintendent William McAndrew, of that city, and summed up his opposition by saying that "It is about time that we were getting a home town man at the head of the schools."

The Chicago alderman did not discuss the superintendent's standing as an educational

leader, or his efficiency as the manager of the schools. The question of whether McAndrew had always taught in Chicago, or had at some one time taught elsewhere was, in the alderman's mind and according to his dictum, was an outsider.

The fact that McAndrew taught school in Chicago many years ago did not in the eyes of the alderman make him a home town man. And the further fact, that he served successfully for years as an associate superintendent of the New York City schools renders him a rank outsider and unfitted him for the Chicago job. At least, so the alderman says.

It so happens that the modern board of education as exemplified in this country has long discarded the home town or Chinese wall idea. School superintendents are chosen upon a basis of character and fitness, and no questions are asked whence he comes. By examining the list of school superintendents who preside today over the school systems of American cities it will be found that the "home town" idea is obsolete.

But, coming back to the Chicago situation, let us quote the Chicago Tribune, which asks: "First, why remove one of the best superintendents our schools have had? Second, why, if he is forced out, get a 'home town man'?

"The answer to the first question is this: Mr. McAndrew has made bitter enemies, as any other superintendent who is fit to run our schools would have made them, because he has insisted upon running the schools for the benefit of the children and not for the benefit of politicians, of Miss Haley and her federation, or of grafters who want to fatten on school expenditures.

"The answer to the second question is that the term 'a home town man' means one who will shift and place teachers according to pull, who will take a friendly view of school sites and of other questions of administration and expenditure, contracts for supplies, etc., and who generally has an 'acquaintance with the local atmosphere'—if we may borrow the mayor's expression—and is not too sensitive, so to speak, as to the olfactory nerve.

"Of course, if our object is to do the best possible for the children, we should always get the best available educator and administrator of school affairs, whether he is to be found in Chicago, or New York, or Bangor, Me., or Tulsa, Okla. That was the end in view when Mr. McAndrew was selected and those who are interested in the schools as educational opportunities for our youth, and not political or money making opportunities for politicians or grafters, have been well satisfied with the selection. But Mr. McAndrew, it seems, is to be put out if possible and replaced with a home town man who will make the schools a profitable annex to our home town politics."

What applies to the school interests of Chicago applies to other American cities. The only difference is that at this late day Chicago raises the "home town" issue while other cities do not. The average American city has long determined an issue which still remains undetermined in the Chicago aldermanic mind.

REPLACING A BOARD OF EDUCATION WITH A SALARIED COMMISSION

The administrative school body, known as the board of education, has become a fixed institution in American community life. The process of refinement in the operation of such an institution has led to a definite understanding as to its function and the relation that it bears to the several school factors. In fact, modern school administration has advanced to the point where there can be no misunderstanding as to the scope, function, and operation of a school board and as to its control over the factors that make for an efficient school system.

This does not, however, mean that perfection has been reached, or that there is not room for improvement. But, it does mean that the modern board of education, as such, which has been evolved by many minds and in the course of many years, reflects the sentiments of a taxpaying public as to who shall govern the schools and how they shall be governed.

This fact by no means deters the reformer from suggesting a radical plan of reorganization. These suggestions and recommendations pop up periodically and assume various forms. Recently we had occasion to touch upon the suggestion loudly and eloquently proclaimed somewhere in this country that the school system be placed under the so-called city manager system whereby the engineer who looks after the water works, electric light plants, and the sewerage system could incidentally boss the school system. Wonderful idea!

The most recent reformer, who sees something radically wrong in the board of education idea, is none other than a Chicago alderman. He wants a salaried school board that will give all its time to the job. Such a body, in his judgment, will cure all the ills which now afflict the Chicago school system. An old and well worn suggestion!

It seems superfluous to repeat that the modern board of education is the connecting link between the people and their schools, and that this link expresses an American idea which means local control of educational affairs. It means, too, the unselfish cooperation of a part of the citizenship in the administration of a school system.

The American people cheerfully pay for the maintenance of good schools as a prerequisite to national stability and wellbeing. They want to keep in touch with the important function of government which aims to train the youth to useful citizenship. Hence, the board of education must be a representative institution, and not a bureaucratic body.

A salaried commission would mean to foster the bureaucratic idea and to destroy the principle of popular representation. It would establish a wall between those that run the schools and those who pay for them, and prove contrary to the American genius which fosters the democratic idea at the very source that makes for the training of citizenship.

The modern board of education reflects the nation's scheme of government fairly well in that it is at once legislative, administrative, and judicial in character. It delegates executive authority, confers duties and responsibilities, and exacts efficiency of service. The scheme is sound and has given the country the best system of popular education in the world.

In contemplating the various panaceas and schemes which are from time to time sprung upon the public, it is gratifying, too, to note that they usually fade into thin air. The public is not so readily stampeded into discarding that which has been tested and found serviceable, or plunge into the untried and hazardous in the administration of its educational system.

—Child labor has increased in 24 out of 29 large industrial cities of the United States, according to the Children's Bureau of the U. S. Department of Labor which issued its annual report for 1926.

Twelve states and 29 cities having a population of 100,000 or more reported to the bureau on the number of 14 and 15-year-old children receiving work permits during 1924 and 1925. Eight of the states and 24 of the cities reported increases during 1925, as compared with 1924. Five cities—Washington, Chicago, Indianapolis, Louisville, and St. Paul, reported decreases.

The largest decrease the past year, 67 per cent in Washington, D. C., followed an amendment to the compulsory school attendance law which became effective in February, 1925.

Problems and Programs of Schoolhouse Building in Arkansas

C. M. Hirst, Supervisor of School Buildings for Arkansas

The division of School Buildings and Grounds was organized in the state Department of Education July 1, 1924. It came in response to a long felt need and demand on the part of school people of the state for an official in the state department capable of directing the planning of schoolgrounds and school buildings in the state.

At the time of the organization of the division there were 6,616 schoolhouses in the state, and only 477, or about 14 per cent of the total, had been erected from plans that met even the most elementary standards set by the state department of education. One hundred twentynine of these were negro schoolhouses built from Rosenwald plans.

The purposes of the division are:

To prepare school ground plans for communities when convinced that the plans will be developed.

2. To furnish general school building plans to school officials for one, two, three, four, five, and six-teacher schools, and for such buildings as teachers' homes, shops, home economics buildings, and gymnasiums.

3. To furnish preliminary sketches of floor plans for larger buildings, that do not adapt themselves to general plans, after a survey of the needs of the school.

4. To check architect's plans for school buildings, upon the request of the local architects or school boards.

 To advise school officials as to plans for remodeling, repairing, and alteration of school buildings.

6. To advise superintendents and teachers as to interior arrangement, furniture, and equipment.

Some Problems Confronting the Department

In the very beginning the department met some complicated problems that had been furnished in twelve counties and practically all

handed down through all the years of schoolhouse building, without definite planning for school needs, use, convenience, and economy. Among these might be listed the following:

1. Awkwardly planned buildings with maximum waste of space and minimum classroom area, resulting in building cost overbalancing maintenance and teacher cost.

2. Poor construction and materials, without regard to permanence and comfort.

3. Improper lighting; from two to four sides of the building, causing cross lights, dark areas, shiny spots on blackboards, glare in the eyes, and dangling shadows at close focus when writing and insufficient light.

4. Bad interior arrangement such as wall colors, blackboard heights, and decorations.

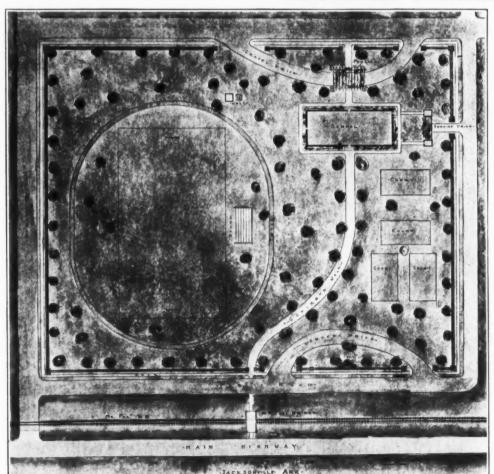
5. Furniture and equipment unfit for the children who use them; seats too large or too small, or different sizes in the same row from front to back; colors not suitable, and in rare cases the "old time bench"; equipment for sanitation in nearly all cases obsolete and dangerous to the health of children.

Accomplishments of the Department

During the first two years of the existence of the department schoolhouse plans were furnished to 270 communities in the state, and a personal visit was made to practically all of them by the director of school buildings and grounds. In addition to these visits, many others have been made to schools, teachers' institutes, women's clubs, and other organizations that could be used as a medium for informing the people of the state as to lighting, ventilation, and other principles of schoolhouse planning. During this period 261 houses were erected from state plans, or from slightly modified state plans, which was better than 96 per cent of plans furnished. Ground plans were



YARBRO HIGH SCHOOL-A TYPICAL RURAL SCHOOL IN MISSISSIPPI COUNTY, ARK.



SKETCH OF PROPOSED SCHOOL GROUNDS FOR JACKSONVILLE, ARK.

Designed by the State Department of Education, Little Rock, Ark.

of them are being developed. These facts are positive evidence of cooperation on the part of school boards.

Obstacles to School Building

Among the outstanding obstacles to school building in the state may be listed the following:

1. Financial. The income is insufficient to hire teachers and pay for the building. In rural districts, where loans are less than \$5,000, interest rates and commissions to brokers are almost prohibitive, yet the district cannot erect a house without floating the loan.

2. Districts too Small. It is almost impossible to make consolidations on account of local differences, and in most cases the per capita cost of the school buildings could be reduced by consolidation.

3. Location of Site. Due to local differences as to location of building for convenience of pupils.

Some aid must be provided by the state in building schools in order to keep apace with other developments of the state. The splendid roads that are being built only magnify the poor housing facilities for schools.

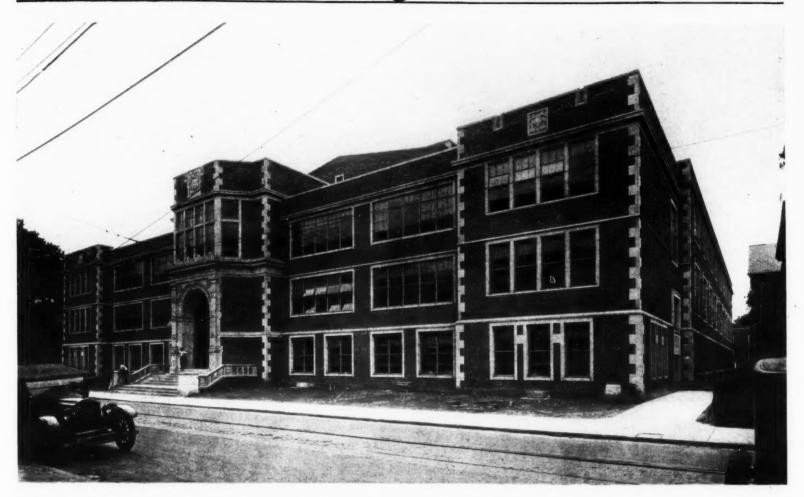
Responsibility of the State in School Building

The responsibility of the state in solving some of these problems may be classed as follows:

 Organizing or providing for satisfactory system of consolidating larger units for school purposes, and settling differences as to location of schools.

(Concluded on Page 140)

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Warne, Tucker and Patteson
Charleston, W. Va.
Builders
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Nthe school of today, with its straight simplicity of line and its solid permanence of construction, Fenestra Reversible Ventilator Steel Windows are the sign and seal of up-to-dateness for the life of the structure.

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better windows combine economy with their other advantages, for they can be readily shaded, and conveniently washed. Besides, they are made of solid rolled steel sections for durability and low maintenance.

Charleston's Senior High School is but one of the many Fenestra-equipped schools erected in the past few years. For other examples, see "Architectural Windows," the latest publication on Fenestra "Reversibles." A copy will be sent you free on request.

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SEISCHOOL FINANCE SE

IOWA SCHOOLS

UNIFORM ACCOUNTING SYSTEM FOR IOWA SCHOOLS

Beginning July 1, 1927, all schools in the state of Iowa will be required to keep their books in accordance with the uniform school accounting system approved and adopted by the Iowa director of the budget.

The system was planned and carried out by Mr. Emmet L. Morris, of Marquette, Iowa, under the direction of Mr. E. L. Hogue, director of the budget. Under the new system, all the schools of the state, with the exception of a few of the larger cities, will use this system.

Under the system, sheets are provided to care for carefully divided classifications of expenditures and receipts. There are also sheets for recapitulation, bond register, bond file, and record. A special type of warrant adapted to the system has been provided. A sheet called an internal budget completes the series of ten forms, each of which is suited to a definite purpose. The internal budget form leads directly to the budget estimate certified by each local board in asking tax levies for the ensuing year. The system is simple, yet complete, in operation. It involves no great mass of detail but is scientific and conforms with the plan recommended by the National Education Association.

The system is the result of a careful research which culminated in a survey of accounting conditions in Iowa in more than 140 representative districts of al' sizes. A study was made of the uniform systems used in practically every state in the Union and of the forms used by the leading cities all over the country. This was followed by a tour of the state in which Mr. Morris visited the business officers of the districts and discussed school accounting problems with them.

discussed school accounting problems with them.

LOUISIANA'S SCHOOL FINANCE

"One-half of Louisiana's wealth is located in four parishes where dwell one-fourth of her children. The other one-half of her wealth is located in sixty parishes, where dwell the re-maining three-fourths."

This statement was recently made in a public address by E. S. Richardson, president of the Louisiana Teachers' Association. In discussing the school finances of the state, Mr. Richardson

"Is Louisiana playing the game fairly with the public schools? She is taking care of the ex-Confederate soldiers, she is looking out careex-Confederate soldiers, she is looking out carefully for the conservation of game and fish, she is building and keeping up a great system of highways, supporting her eleemosynary institutions, supporting all the institutions of higher learning. All of this is commendable and is as it should be. But what is Louisiana doing for her public schools? In 1923-24, all of the southern states, except Florida, contributed a larger percentage of the school fund than Louisiana. During that year only 19 per cent of the school funds in Louisiana was provided by the State Government, the remaining 81 per cent being voted locally. The state of Texas contributed 40 per cent of the school fund for that state, only 60 per cent being supported by the counties. the counties.

"The total expenditure for education per capita of population in the nation as a whole is \$16.25; for Louisiana, \$10.42. The cost of maintenance per pupil enrolled in Louisiana is \$36.46, while that of the nation is \$58.97. The average salary for Louisiana teachers is \$890 a year, while that for the nation as a whole is \$1,227. The total expenditure per pupil enrolled in Louisiana is \$42.15, while that for the nation is \$68.02. The cost for administration, that is, overhead expenses, is greater in the nation than in Louisiana, it being 3 per cent in the nation and 2.6 per cent in Louisiana.

"Louisiana school hourds are both executive

and 2.6 per cent in Louisiana.

"Louisiana school boards are both executive and legislative bodies; they serve for the parishes as the courts of last resort in all school matters. Frequently, when serving in an executive capacity they are misunderstood and accused of being autocratic and undemocratic. Any student of government who has studied school affairs must admit that too much socalled democracy in school government often brings about chaotic conditions, and, as a result, children suffer. Leadership in school administration is as important as leadership in any other line of activity. School boards and school officials should assume leadership. The educa-

tion of the children is far too important to be left entirely to the whims and initiative of persons who are not responsible for the success or failure of the school system. The people are looking to boards and school officials for sympathetic direction, friendly guidance, and school leadership. Shall our people stand pat on the narrow-minded interpretation of democracy as related to school administration and by so doing cheat the children out of their just heritage?

related to school administration and by so doing cheat the children out of their just heritage?

"May the time soon come when society will be far more interested in the welfare of the child than being so vitally concerned about the ultra democratic form of school government. When our lawmakers and educational leaders give a wider interpretation to the meaning of democracy, educationally, when they interpret its meaning in terms of the state's responsibility to the child, then and then only, will all the children of all the people of our state be given equal educational opportunities at equal cost."

THE SCHOOL DOLLAR IN NORWALK

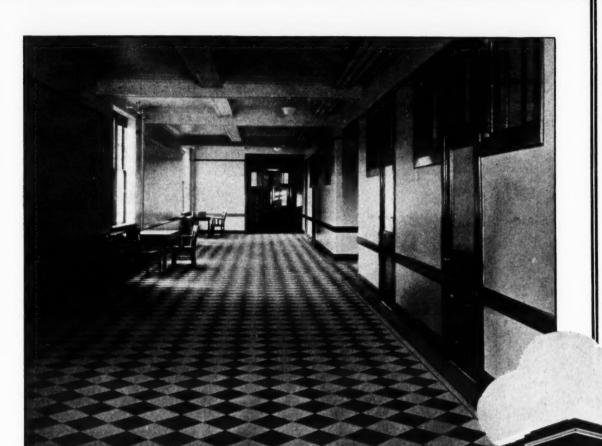
equal educational opportunities at equal cost."

THE SCHOOL DOLLAR IN NORWALK
In a study of school costs in Norwalk, Conn.,
emphasis was placed not on "how much money"
but on "how much for the money." A study
of all the elements in the problem, together with
a statement of costs, led to the conclusion that
the school dollar in Norwalk goes a long way.
A study of the "candle" illustrating and representing the school dollar indicates that a large
percentage goes directly into "production," that
is, instruction. The other factors are judged
by sound business standards.

is, instruction. The other factors are judged by sound business standards.

Turning to the per capita costs in elementary and high schools, it is found that it costs \$16.60 less to educate a boy or girl in the Norwalk elementary schools (1924-1925) than it does in the average representative Connecticut community comparable in size to Norwalk. Comparing the estimated cost for Norwalk with actual costs in other communities in 1924-1925 led to the conclusion that the community is "favored."

The figures which have been taken from reports made to the state board of education, show that the average per capita cost of elementary schools in 1924-1925 for a selected group of cities and towns was \$84.40. The cost in Norwalk was \$67.80. The difference was \$16.60 per pupil. With an enrollment of 4,120 children for 1924-1925, the total cost in Norwalk was \$68,392, (Continued on Page 98)



The Maxson School, Plainfield, N.J., John T. Rowland, Architect. Here was wanted quiet, beauty and durability that would withstand the never-ending shuffling and tramping that is the portion of corridor floors. All three are found in this floor of Gold Seal Treadlite Tile, installed by the Bonded Floors Company.

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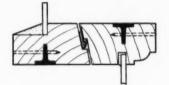
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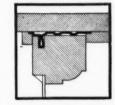
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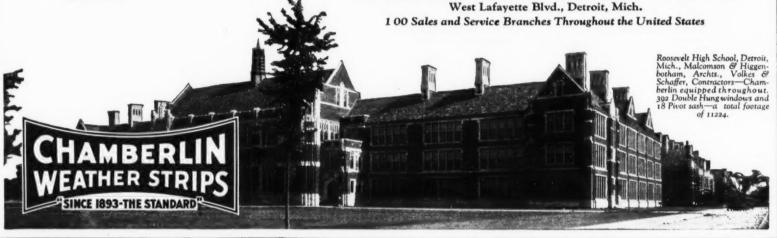
34 years' experience has proved Chamberlin Tongue-in-wood-Groove Contact sound in principle and over

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The frequent preference given to Chamberlin equipment in school building construction is due largely to the principle upon which Chamberlin conducts its business. Chamberlin has always maintained that weather stripping, to be permanently effective, requires more than correctly designed, well made weather strips—but that exacting attention to weather strip installation is equally important. Therefore, in addition to manufacturing its weather strips, Chamberlin installs them exclusively with its own mechanics, trained and supervised to work to the Chamberlin standard. And, as further assurance of lasting satisfaction, Chamberlin guarantees and services its equipment "for the life of the building."

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which is less than in the average city or town in Connecticut at all comparable to Norwalk.

In a study of the bonded indebtedness, it was shown that the city is able to float over \$600,000 in school bonds and still absorb the cost with a favorable difference in per capita costs for that year (1924-1925). In other words, more than the cost of the proposed bond issue might be absorbed out of an annual budget comparable to that in cities and towns cited.

ALTOONA BOND ISSUE APPROVED

ALTOONA BOND ISSUE APPROVED
The voters of Altoona, Pennsylvania, on November 2nd, approved a bond issue of \$2,000,000 at a general election held on that date. The election resulted in 6,938 votes for and 1,563 votes against the proposition, and it was estimated that 96 per cent of the voters were reached as a result of the schools' publicity work.

In order to bring the needs of the schools to the voters, the school board prepared and distributed booklets telling about the present and anticipated enrollment, the bonded and per capita indebtedness, building cost, assessed valuations.

capita indebtedness, building cost, assessed valuation of the city, per pupil cost, present indebtedness, and an outline of the anticipated needs in the way of new and better housing for elementary and junior high school pupils.

The present bond issue will be used for the building of an extension to the high school, for a junior high school building, for two new elementary schools and for the purchase of additional school sites in rapidly growing sections of the city.

SCHOOL COSTS AT QUINCY, MASS.

A recent study of the cost of education in Quincy, Mass., shows that in common with school costs the country over, the expenditure for public education in the city has increased rapidly within recent years. As a result, taxpayers are sometimes led to wonder whether school authorities are sufficiently regardful of economy in the administration of school interests.

Three facts are mainly responsible for the rising school costs, viz: (1) the steadily increasing membership of the schools; (2) the steady decrease in the purchasing power of the dollar in recent years, and (3) the greater

efficiency of the schools in meeting community

Computation, based on (a) the expenditure for public school support in Quincy for the twenty years from 1900 to 1920, (b) the increased membership of the schools during that period, and (c) the depreciation in the purchasing power of the dollar, shows the following facts with respect to the increase for school support in 1920 over that for 1900, which amounts to \$429,335.

1. Approximately nineteen per cent of this increase is due to the increased membership of

2. Approximately 80 per cent of the increased cost is due to the decreased purchasing power of the dollar.

3. The remainder, approximately one per cent, is due to increased efficiency, i. e., the larger service rendered

larger service rendered.

Since neither the increased membership of the schools, nor the depreciation in the purchasing power of the dollar are matters controlled by school authorities, and since these two factors together contribute to cause practically 99 per cent of the increase noted in the school expenditure for the period under discussion, it is obvious that those who administer the schools cannot be fairly held responsible for the fact that our school expenditure today is considerably larger than it was two decades ago.

An interesting fact in this connection appears in the tabulation showing the itemized per capita costs for school support with Quincy for the year ending June, 1925, as compared with similar costs for the state at large, and for the 38 other cities of the commonwealth.

From the tabulation it appears that, while the per capita cost for Quincy was \$71.39, that for the state at large was \$87.63, and that for the 38 other cities was \$89.79.

The figures indicate that, if Quincy had expended for school support during the past school year as much per pupil in the average membership of her schools as the similar average for the state at large, the school budget would have been larger than it was by \$172,206; that, if Quincy had expended as much per pupil as the similar average for the 38 other cities,

school budget would have been increased

by \$195,224.

The facts indicate that those charged with the management of the schools have guarded carefully the expenditure for school support, and they suggest the question whether a larger expenditure may not be made for the education the young people of the community.

of the young people of the community.

FINANCE AND TAXATION

The St. Joseph, Mo., school district is in financial straits, according to President O. A. Zollinger of the board of education, and will close its schools two weeks earlier in order to overcome a shortage of \$20,000. While the salaries will not be cut, the term will be shortened. "Our income has been cut to a point," President Zollinger said, "where our condition is critical. There has never been a school board in this city that has been more economical in its expenditures than the present one, but there are some things coming up before the end of the fiscal year that we cannot get away from, and must be faced. If departments of the county were operated on methods similar to those of the school board, there would not have been this condition." condition.

—An error on the part of the Racine, Wis., city council gave the local board of education \$33,333.79 more than it had asked for. The council failed to deduct from the total the usual budget receipts. The board will get from the state \$133,333.79, but the council only deducted \$100.000

\$100,000.

The building survey made of the Aberdeen, South Dakota, school system has resulted in a recommendation for a bond issue of \$240,000 based upon twenty yearly payments, not to exceed 5 per cent interest rate. The survey was made by Oscar S. Wood, superintendent of schools, and Frank E. Wyttenbach, clerk of the board of education. The board consists of N. J. Lindgren, president; William Owsley, vice-president; Henry Neill, Thomas Ranney, and Edward Soike.

The Omaha, Nebr., board of education has been asked by the local Parent-Teachers' Association to raise the mill levy for school purposes from 13 to 15 mills. The newly elected members of the board do not favor the raise.

of the board do not favor the raise.
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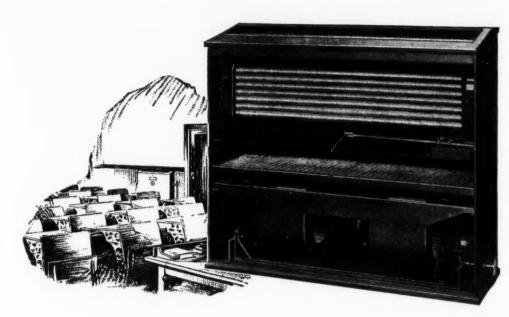
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—Seattle, Wash. While cost reductions have been made, it has been the policy of the board of education to safeguard the educational welfare of the boys and girls. The effectiveness of the policy has been evidenced by the increased proportion of expenditures devoted to strictly instructional purposes, while the relative amounts devoted to administration, operation of plant, and similar items have been lowered.

During the year ending June, 1923, for example, 74.9 cents out of every current expense dollar were devoted to instruction, while during the year ending June, 1926, 79.7 cents out of each current expense dollar were so expended.

—Rutland, Vt. The school appropriation for

-Rutland, Vt. The school appropriation for 6-27 has been fixed at \$132,725, which is 1926-27 has \$4,242 less than that of 1925.

—Cincinnati, O. The citizens, by a majority of 20,000, approved a request of the board of education for an increased tax levy. The levy will cover a five-year period and will assure teachers a substantial increase in salary during this period. Supt. R. J. Condon has announced that the working out of a new salary schedule will be approached in an unselfish spirit and with a desire to obtain the best results. will be approached in an unselfish spi with a desire to obtain the best results.

—Crawfordsville, Ind. A reduction of nearly \$16,000 in school expenses has been made during the past three years, according to a report of a survey made by Mr. C. C. Underwood, superintendent of schools. The total disbursements for 1925-26 were \$231,152, and the debt service

—Detroit, Mich. The board of education has instructed the corporation counsel to start proceedings toward obtaining from the school ceedings toward obtaining from the school board of District No. 1, of Redford Township, about \$72,000 in primary school money which legally belongs to the school board, but which was turned over to the Redford board on a

It appears the trouble started since the annex-It appears the trouble started since the annexation of the school district. When the census was taken, the annexation had not taken place, and this fall the school board of the unannexed portion of the district received the district's entire quota of the primary fund amounting to \$75,000. On a per capita basis, the district should receive only \$3,000, the remainder of the amount going to the Detroit school system.

The State Department of Public Instruction of Florida has announced a semi-annual apportionment of \$248,188 for the public schools of the state. The money represents the proceeds of the one-mill state school tax. Hillsborough County received the largest share of the apportionment, with \$24,583 to its credit.

-Chicago, Ill. Mr. Charles T. Byrne, chairman of the finance committee of the school board, has warned the members that there are not sufficient funds to carry on the work for the full year and that drastic curtailment of activities must be paired with denial of further expansion for 1927-28.

—St. Louis, Mo. A recent report of the business department of the schools shows that instead of an increased expense of \$2,955,928 the past year, there is an increase of only \$766,790. A comparison of audits made by the mayor's public accountants for the fiscal years ending June, 1925, and 1926, showed that the board had expended \$2,955,928 more the last year than the year previous. It appears that the accounting year previous. It appears that the accounting methods of the firms making the reports were radically different so that items having the same headings stood for different disbursements.

—Oneida, N. Y. The school board has adopted a budget of \$118,000.

Joliet, III. The sale of \$100,000 in tax an-The sale of \$100,000 in tax anticipation warrants for a premium of \$129 and an interest rate of four and one-half per cent has been effected by the board of education. The proceeds of the sale will be used in providing funds for meeting the operating expenses until the 1926 tax money comes due.

-St. Joseph, Mo. The school system faces a shortened school term due to inadequate funds. The financial situation is attributed to the reduction of the tax assessments and a decrease in the amount received from the state school fund. In an attempt to meet the situation, the board has made every possible reduction in ex-penses without decreasing the salaries of the

—DePere, Wis. The school board has fixed the budget for the year at \$30,740, which is \$3,089 less than last year. The item of salaries is estimated at \$27,770, and the item for general expenses at \$41,345.

—A total of \$6,163,028 has been distributed to the schools in 87 counties of Minnesota. The amount is the largest state aid distribution

—Lima, O. Faced with a shortage of funds because of delinquent taxes, the school board recently refused to purchase \$35,000 worth of equipment recommended for the schools. Up to December the board had been paid \$145,000 of the \$485,000 due. In December, the board was obliged to pay \$100,000 borrowed last spring in anticipation of taxes. To carry the schools into February, it was estimated \$50,000 would be

—The twenty-six lunchrooms, out of thirty-three, conducted in connection with the New York city schools made an earning of \$38,000 for the year. The expenditures on the whole were \$650,893.70 and the receipts \$648,136, thus leaving a net loss of \$2,757.70.

—In discussing the subject of taxation in support of the schools, Secretary R. C. Moore of the Illinois State Teachers' Association, recently said: "Every township has its own assessor, and every assessor has his own standards of values. Also, every property owner has his own standard of value and elasticity of conscience when the assessor comes around. Since every-body knows not all property is assessed there body knows not all property is assessed, there is a constant race by different classes of property to get under cover. The per cent of assess-ment efficiency is getting less and less; that is, the assessed value is becoming a smaller and smaller part of the true or legal nature. Bank deposits are now down to less than two per cent of their value, although they are legally as assessable as farm land. Real estate is only 40 per cent or less of the property value in Illinois but pays about 80 per cent of the taxes."

—Oshkosh, Wis. The school board has adopted a budget of \$441,696, which is approximately \$23,000 more than that of last year.

-Mr. A. M. Sullivan, business manager of the board of education at Boston, Mass., has reported the expenses for the first eleven months of the current year to be \$17,415,745. The expenditures for all purposes, exclusive of lands plans, and construction, amounted to \$258,497; for lands, plans, and construction, it amounted to \$4,157,247.

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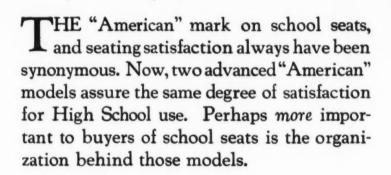
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SCHOOL LAW
School Lands and Funds
The exercise of power of determining the necessity for and kind of schoolhouse to be constructed by school officers, within their discre-

structed by school officers, within their discretion and within limits defined by statute, cannot be interfered with by the courts, except where it has been manifestly abused.—Bohn v. Stubblefield, 238 Ill. App. 453, Ill.

The legislature can enact any legislation regulating public free schools with does not deny to the citizen some constitutional right.—Virginia Constitution of 1902, § 129.—Flory v. Smith, 134 S. E. Reporter, 360, Va.

In considering the county school board's exercise of power of regulating public schools, courts are not concerned with the wisdom of the act done, but with reasonableness of the regulation promulgated.—Flory v. Smith, 134 S. E. Reporter, 360, Va.

Schools and School Districts

Schools and School Districts

A school district is a quasi municipal corporation, being a subordinate division of the county which has control of the public schools and school property.—School Dist. No. 98 of Adams County v. Pomponi, 247 Pacific Reporter, 1056, Colo.

The county commissioners' order declarate.

The county commissioners' order declaring a school district partly within another county and partly within a new county, a joint district is held a nullity.—State v. Urton, 248 Pacific Reporter, 369, Mont.

Is neld a nullity.—State v. Urton, 248 Pacific Reporter, 369, Mont.

A court cannot interfere with the county commissioners' discretion to divide a new county into school districts by declaring an order denominating a district partly in the third county a joint district valid as to the part in a new county.—(Mont. Rev. Codes of 1921, § 4394.)—State v. Urton, 248 Pacific Reporter, 369, Mont. Where a county board of education received returns of an election and declared the result in favor of consolidation of districts, equity will not enjoin it from doing authorized legal acts, in view of a vote favoring the consolidation, on the ground that the election was illegal because the managers did not have the proper list of qualified voters and that persons voting favorably had not taken the voters' oath and a majority of the qualified voters did not vote for consolidation.—(Acts of 1919, p. 288.)—Clark v. Board of Education of Laurens County, 134 S. E. Reporter, 74, Ga.

School District Government

A petition for a review of an action of the

A petition for a review of an action of the county board of school trustees, grouping common school districts, does not lie until after an appeal to the state superintendent of public instruction unless a question of constitutionality is raised.—(Acts of the 39th legislature of 1925, c. 59, and Vernon's annotated civil statutes of 1925, arts. 2922a-2922l.)—Stinson v. Graham, 286 S. W. Reporter, 264, Tex. Civ. App.

An action of the commissioner of education in passing upon an appeal from the determination of the board of education of a union free school district is final and conclusive, and not subject to question or review, in view of the Education Law (consolidated laws of New York, c. 16), § 890.—People ex rel. Board of Education of Union Free School Dist. No. 2 of Town of Brookhaven, Suffolk County v. Graves, 243 N. Y. 204, 153 N. E. Reporter, 49, reversing order In re Board of Education of Union Free School Dist. No. 2 of the Town of Brookhaven, 213 N. Y. S. 767, 215 Appellate Division, 744 N. Y. Dist. No. 2 of the Town of Brookhaven, 213 N. Y. S. 767, 215 Appellate Division, 744, N. Y.

School District Property

The directors of a community high school dis

The directors of a community high school district cannot construct a temporary school building without a vote of the people authorizing it, in view of Cahill's statutes of 1921, c. 122, pars. 99, 137.—Bohn v. Stubblefield, 238 Ill. Appellate Division, 453, Ill. App.

A school board of a primary school district is held unauthorized to rent an extra building for school purposes in view of the Michigan complete laws of 1915, § 5667.—Starkweather v. Fox, 209 N. W. Reporter, 849, Mich.

The directors of a community high school district have power, under Cahill's statutes of 1921, c. 122, pars. 99, 137, to lease a building for school purposes without a vote of the people.—Bohn v. Stubblefield, 238 Ill. Appell. 453, Ill. App.

App.
A contract let to another than the lowest bidder by a state textbook commission is valid, in the absence of fraud or reckless improvidence.— (Crawford & Moses' Digest, § 9065-9092.)—Hill v. American Book Co., 285 S. W. Reporter, 20,

A statute is held to require the establishment of a central depository at the cost of the publishers, awarded textbook contracts, and prohibit addition thereof to bid in fixing the retail price.—(Crawford & Moses' Digest, §§ 9077,

9080, as amended by the Arkansas acts of 1921, pp. 329, 331, §§ 4, 5.)—Hill v. American Book Co., 285 S. W. Reporter, 20, Ark.

A contract adding the cost of the central textbook depository to bid in fixing the retail price of books is void.—(Crawford & Moses' Digest, §§ 9077, 9080, as amended by the Arkansas.acts of 1921, pp. 329, 331, §§ 4, 5.)—Hill v. American Book Co., 285 S. W. Reporter, 20, Ark.

A statutory requirement that the contractor stipulate that he is not furnishing textbooks to other states, etc., at less retail price under similar conditions of distribution and delivery, is held not to require the construction of an act as authorizing the inclusion of a central depository cost in retail price.—(Crawford & Moses' Digest, § 9077, as amended by the Arkansas acts of 1921, p. 329, § 4.)—Hill v. American Book Co., 285 S. W. Reporter, 20, Ark.

A contract adding the cost of central textbook depository to bid in fixing the retail price of books is void, and no action can be maintained on the bond for performance thereof.—(Crawford & Moses' Digest, §§ 9077, 9080, as amended by the Arkansas acts of 1921, pp. 329, 331, §§ 4, 5.)—Hill v. American Book Co., 285, S. W. Reporter, 20, Ark.

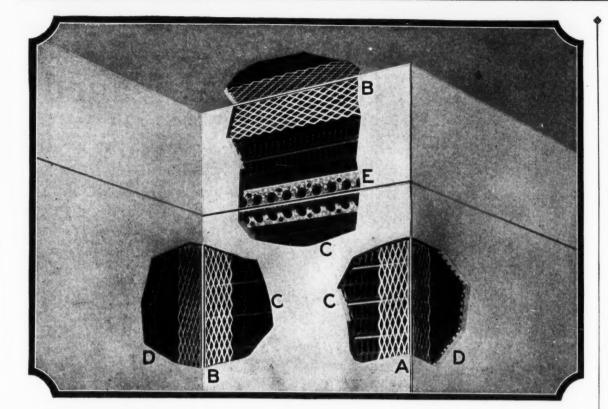
The knowledge and acts of a principal and teachers is held knowledge and acts of defendant school district as to boy injured on school ground.—Rice v. School Dist. No. 302 of Pierce County, 248 Pacific Reporter, 388, Wash.

School District Taxation

Where the local school districts are consolidated, it is unnecessary that the word "consolidated" appear as part of the name for the new district, and it is proper for proceedings to validate the bonds to be conducted in the name of the district as fixed by proper authorities.—(Acts of 1922, pp. 21, §§ 3, 4; Georgia constitution, art. 3, § 7, par. 8.)—Hawthorne v. Turkey Creek School Dist., 134 S. E. Reporter, 103, Ga.

School District Claims

Where the members of a school board, with others, contracted with the board for their individual benefit, that no financial loss resulted



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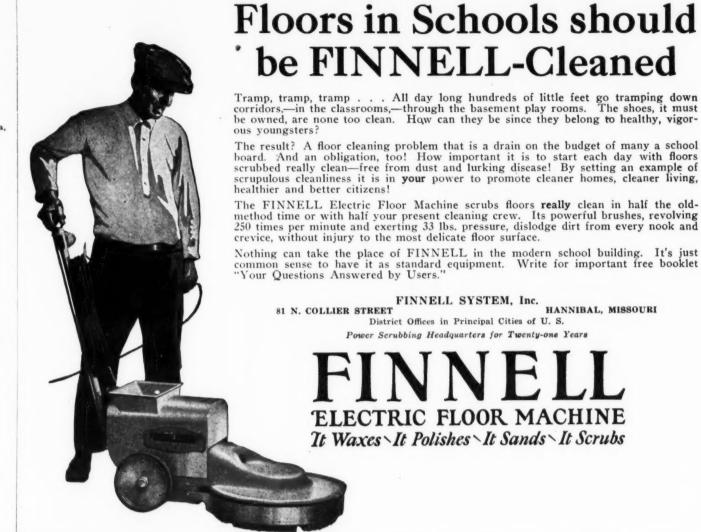
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Bethlehem School District, Bethlehem, Pa.



(Continued from Page 104)

The Court will not give technical construction The Court will not give technical construction to a complaint to nullify a contract entered into by the members of a school board with themselves for their benefit as individuals.—School Dist. No. 98 of Adams County v. Pomponi, 247 Pacific Reporter, 1056, Colo.

Whether a boy was injured on the school ground before 8:30 a. m., is held for the jury, where it was the principal's duty to supervise the grounds after such a time.—Rice v. School Dist. No. 302 of Pierce County, 248 Pacific Reporter, 388, Wash.

porter, 388, Wash.

The negligence of a school district is held

for the jury in an action by a boy who was injured on the school grounds by a live wire.—Rice v. School Dist. No. 302 of Pierce County, 248 Pacific Reporter, 388, Wash.

The contributory negligence of an 11-year-old boy in the fourth grade, who was injured by a live wire on the school ground, is held for the jury, in an action against the school district.—Rice v. School Dist. No. 302 of Pierce County, 248 Pacific Reporter, 388, Wash.

Teachers

Teachers

The hiring of an extra teacher in a primary school district is held within the discretion of a school board.—Starkweather v. Fox, 209 N. W. Reporter, 849, Mich.

The school board of a primary school district is held authorized to hire and pay an extra teacher, where such action was necessary for the continuance of ten grades already established and an eleventh grade had been added.—Starkweather v. Fox, 209 N. W. Reporter, 849, Mich.

Mich.

A salary schedule under which the salary paid male teachers was higher than the salary received by the female teachers, is held discriminatory (New York education law, § 569, as added by the laws of 1924, c. 614.)—Moses v. Board of Education of the City of Syracuse, 217 N. Y. S. 265, 127 Misc. Reporter, 477, N. Y. Sup.

N. Y. S. 265, 127 Misc. Reporter, 477, N. Y. Sup.

Under the education law of New York, § 569, as added by the laws of 1924, c. 614, there is continuing mandatory duty on the board of education, if it adopts new salary schedules after September 1, 1924, to make salaries of women teachers equal to that of men for same or similar work.—Moses v. Board of Education of the City of Syracuse, 217 N. Y. S. 265, 127 Misc. Reporter, 477, N. Y. Sup.

The female teachers' acceptance of salaries less than those paid male teachers, is held not to estop them from receiving an additional amount, nor to constitute a waiver of statutory rights (Education Law, § 569, as added by the New York education laws of 1924, c. 614.)—Moses v. Board of Education of the City of Syracuse, 217 N. Y. S. 265, 127 Misc. Reporter, 477, N. Y. Sup.

An appeal to the commissioner of education is held not the sole remedy of female teachers, discriminated against by the salary schedules (Education Law, § 890, as renumbered by the laws of 1918, c. 252, and section 569, as added by the laws of 1924, c. 614.)—Moses v. Board of Education of the City of Syracuse, 217 N. Y. S. 265, 127 Misc. Reporter, 477, N. Y. Sup.

The Education Law, § 569, as added by the New York laws of 1924, c. 614, prohibiting discrimination in teachers' salaries because of sex, is constitutional.—Moses v. Board of Education of City of Syracuse, 217 N. Y. S. 265, 127 Misc. Reporter, 477, N. Y. Sup.

Pupils and Conduct of Schools
The parish superintendent of public schools The female teachers' acceptance of salaries

The parish superintendent of public schools alone has the right to issue a permit authorizing a pupil to attend a school in an adjoining parish.

State ex rel. Fourroux v. Board of Directors of Public Schools of Jefferson Parish, 3 La.

App. 2, La. App.
A parish school board has no right to order

A parish school board has no right to order him to issue such a permit.—State ex rel. Fourroux v. Board of Directors of Public Schools of Jefferson Parish, 3 La. App. 2, La. App.
Such a permit can be issued only if adequate schools of suitable grade have not been provided in their home parish.—State ex rel. Fourroux v. Board of Directors of Public Schools of Jefferson Parish, 3 La. App. 2, La. App.
The use of school funds for tuition in another district is held not authorized (Crawford & Moses' Digest, § 9060.)—Board of Directors of Gould Special School Dist. v. Holdtoff, 285 S. W. Reporter, 357, Ark.

A contract for the transportation of children

A contract for the transportation of children to schools of another district being unauthorized under the Crawford & Moses' Digest, § 9060, cannot be ratified by performance.—Board of Directors of Gould Special School Dist. v. Holdtoff, 285 S. W. Reporter, 357, Ark.

A county school board's rule prohibiting students from leaving the campus between 9 a. m. and 3:35 p. m., is held sustainable as a reason-

able regulation. (Code of 1919, §§ 632, 659, 660, 666, 691.)—Flory v. Smith, 134 S. E. Reporter, 360, Va.

LAW AND LEGISLATION

—The Detroit, Mich., school board has brought legal action to collect a \$72,579 primary school fund from the Redfield union school district which was annexed last spring to the city of Detroit. The Redfield board has refused to relinquish the amount in question.

—McHenry Rhoads, state superintendent of Kentucky, charges that the Bell County board of education had illegally borrowed \$11,000 from one of the local banks. "County boards of education under the law have the right to borrow money against their anticipated annual income when that income is not available for use," he said. "Boards of education do not have the right to borrow money against an income that is when that income is not available for use," he said. "Boards of education do not have the right to borrow money against an income that is available." Bell county may receive \$22,131 from the state public school funds if the county board meets the requirements of the law, Mr. Rhoads suggested. The state board has been withholding state funds for the county because of alleged irregularities in the county board. The state board does not recognize Camie Wilson, Bell county school superintendent.

—The McKeesport, Pa., school district was ordered by the court to pay to contractors the sum of \$18,900 for delays in the construction of the technical high school. After the decision was rendered, the contractors agreed to settle the claim by making a reduction of \$7,000. The board of education refused the offer and will continue the legal contest.

—Wilford L. Coffey was appointed state superintendent by Governor Groesbeck of Michigan, to succeed Thomas E. Johnson, who was removed. His term will extend to July 1, 1927. Johnson expects to test his right in the supreme court. He was charged with illegally accepting salaries outside of his office. If he succeeds in his contention, Governor Fred W. Green, newly elected, will have to remove Coffey in order to reappoint Johnson.

—It is believed that Governor Smith of New York, will in his message to the legislature

-It is believed that Governor Smith of New York, will in his message to the legislature recommend the appropriation of \$18,000,000 for increased state support as suggested by the Friedsam Commission. Of this amount, \$14,000,000 would be allotted to New York City and would enable the payment of increased salaries.

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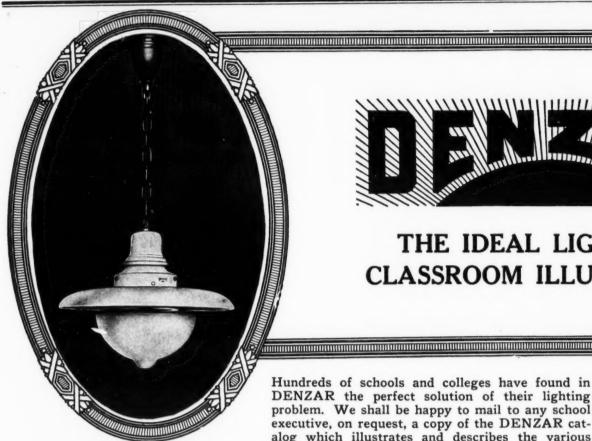
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(Concluded from Page 106)

—The board of education of the borough of Hillsdale, Bergen County, New Jersey, has been ordered by Commissioner of Education John Logan to reinstate George C. White as school principal. He was not reappointed at the beginning of the school year. The Commissioner decided that White had come under the three-year tenure act and therefore could not be year tenure act and, therefore, could not be removed.

—The vocational school board of Watertown, Wis., and the city council recently got into a legal tangle. Charges were made against the former and the latter refused to allow its annual budget. Judge Grimm held that "The city council has made a mistake as to its duties. The council and the vocational school board have entirely separate duties and neither board is concerned with investigating the other in the discharge of its duties. It is the duty of the board to determine what sums are needed for the fiscal year to support the vocational school. It is also the duty of the council to spread this sum upon the tax roll. If funds are misappropriated by either board the taxpayers have ample recourse to law." The court also stated that the same thing was true as to the regular school board, that is, that the school board's budget must be spread on the tax roll by the city council. -The vocational school board of Watertown, city council.

city council.

—A coal contract amounting to several thousand dollars awarded by the school board of Terre Haute, Indiana, was held up in a court proceeding because, it is alleged, the president of the board, William Mendenhall, is employed by the coal firm. Two members, Mrs. Acher and Mr. Cowan, refused to serve with Mr. Mendenhall in the chair. "Mr. Mendenhall is the one member of the board whose conduct while on the board is the cause of the suit now pending," said Mrs. Acher, "and whose qualifications to act on this board are questioned in the complaint. We feel (speaking for Mr. Cowan and herself) that so long as he is acting as the presiding officer of this board, the validity of all the business transacted by this board might be brought officer of this board, the validity of all the busi-ness transacted by this board might be brought into question in case the suit now pending should go against Mr. Mendenhall. But if he steps aside as the presiding officer and occupies a place on the side lines, as it were, the four

members whose qualifications have not been questioned could transact the business of the poard without any questions of the legality of their proceedings.

—The tax of ten per cent on all sales of tobacco enacted by the state of Louisiana last July for the benefit of the schools has gone into effect. The results of the law have not as yet been established.

—The supreme court of New Hampshire has handed down an opinion that the law requiring the vaccination of school children is constitu-

—The amendment proposed in Oklahoma whereby the state school fund was to be increased met with defeat. The amendment received considerable endorsement, but it required 50,000 more voters to carry

—A contracting firm has brought suit against the New York City board of education for \$64,000 claimed as damage owing to delays in building operations caused by the board.

—When the schoolhouse at subdistrict No. 5, Davenport Township, Scott County, Iowa, was destroyed by fire, Miss Hermine Schneckloth, county superintendent, located a different site for the new building. An appeal was taken to Miss May Francis, state superintendent, who reversed the Schneckloth decision. The old site will prevail.

THE JURISDICTION OF SCHOOL AUTHORITIES AND PUNISHMENT OF PUPILS

An interesting discussion of the question as to whether the school teacher's authority extends beyond the confines of the schoolhouse and the school premises, and after school hours, is quoted from the Cornell Law Quarterly in the October 30th issue of the New York Law Louvier. Journal.

In the discussion it is maintained that such authority does exist. A review of the cases in point shows no dissension as to the general rule applicable. It is surprising to see such a unanimity of opinion among the decisions of the courts in a field of law where differences might readily be accepted. The only differences are in the application of the general rule to particular cases, and even there, it appears there is little controversy.

One case, records the Journal, brought truancy one case, records the Journal, brought truancy within the rule. Pupils may properly be forbidden by school authorities from quarreling and using profane language on the way to and from school. They may likewise be required to do night work, and be punished for failure to do so without excuse. Protection of health is a school function, and a child may be required to be vaccinated or else be excluded from school.

An interesting case of recent origin upheld a

An interesting case of recent origin upheld a school rule, prohibiting the playing of football by pupils, under the auspices of the school, and for violation of this rule a pupil was suspended.

It appears there is a limit beyond which the school authorities may not safely go in their control of the conduct of the pupils. A school rule requiring pupils to remain home at night and study from seven to nine o'clock was held to overstep the bounds of school authority, and to invade the rights of the parent to govern the conduct of his child under his charge. However, a rule prohibiting pupils from attending any play, moving picture, or social function on any school night except on Fridays or Saturdays, was upheld. was upheld.

To show that the school authorities are given and that the school authorities are given wide discretion in the creation of school regulations, and that the courts will only interfere where their powers have been manifestly abused, one of the earliest decisions is cited. The decision held that a school committee, in order to maintain the purity and discipline of the pupils. maintain the purity and discipline of the pupils, had power to exclude therefrom a pupil whom they deemed to be of immoral character, even though such character was not manifested by any acts within the school.

any acts within the school.

To prevent the carrying on of fraternity activities in a school is one of the desires of many school officials at present. The authorities in most schools have felt that such groups are detrimental to the best interests of the school, and have tried to limit them by limiting the participation of members of such groups in all sorts of school activities. Such a decision was rendered in one of the few cases on record where a rule prohibiting pupils from joining such secret societies was held to be enforceable by depriving anyone violating the rule from the privileges of the school, with the exception of attendance at classes. attendance at classes

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Surfaced the full width with white granite Alundum Tile $9 \times 6 \times \frac{34}{4}$ "
—a row of Alundum Stair Tile backed up with a row of Alundum Floor Tile of the same size.

Fig. 1. Basement to first floor: Two rows of $6 \times 6 \times \frac{3}{4}$ white granite Alundum Tile on each step; Alundum Floor Tile of the same size and color on the platforms. First floor to second: Two rows of $9 \times 6 \times \frac{3}{4}$ " white granite Alundum Tile on each step; $6 \times 6 \times \frac{3}{4}$ " tile on the platforms.

SECONDARY STAIRWAYS

Brown Alundum Stair Tile $6 \times 6 \times \frac{3}{4}$ ". Used for the full width of the tread or only as a nosing according to location of stairway and the traffic received.

VISITING TEAM DRESSING ROOM

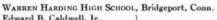
Fig. 2. Brown Alundum Tile 6 x 6 x 34" used for entire floor and under the shower. Panel of brown Alundum Ceramic Mosaic Tile in front of urinals.

Boys' LAVATORIES

Fig. 3. Panels of 118" square, brown Alundum Ceramic Mosaic Tile forming a drip area surrounding all urinals.

GIRLS' SHOWERS

Fig. 4. Under the showers $1\frac{1}{16}$ square, brown Alundum Ceramic Mosaic Tile. For the dressing booths $6 \times 6 \times 34$ brown Alundum Floor Tile. Alundum Tile is slip-proof wet or dry.



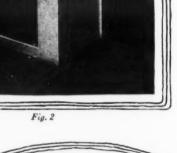
Edward B. Caldwell, Jr.
C. Wellington Walker
Frederick Harlan Beckwith
William B. Ittner, Consulting Architect Associate Architects

Eastern Engineering & Construction Co., General Contractors Louis Christopher, New Haven, Tile Contractor

NORTON COMPANY, Worcester, Mass.

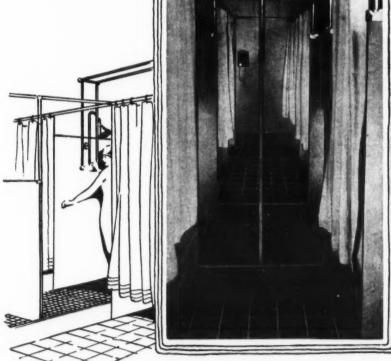
New York Chica.
Pittsbughh CHICAGO

DETROIT PHILADELPHIA HAMILTON, ONT.











SCHOOL BUILDING NEWS

1501 First National Bank Building, Chicago,

SCHOOL BUILDING NEWS

—An appropriation of \$195,000 for the erection of a new school at Hicksville, N. Y., was voted last fall. The building will have twelve classrooms, an auditorium-gymnasium, a lunchroom, and an office. An additional \$10,000 has been appropriated for equipment.

—Minneapolis, Minn. Condemnation proceedings have been begun for a site for a group of portable buildings to house the pupils in a congested section. The new buildings are being provided in accordance with the 1925 building program which appropriated \$30,000 for a site and \$15,000 for the buildings.

The board of education has been asked to appoint a committee to study plans for buildings to be erected during the year 1927. The com-

appoint a committee to study plans for buildings to be erected during the year 1927. The committee will make recommendations regarding the standardization of buildings to include the elimination, the substitution, or the addition of any features deemed wise for economy in construction struction.

struction.

—Seattle, Wash. Additional facilities for 430 children in excess of the original estimates will be provided by the building program inaugurated when the voters authorized a bond issue of \$2,250,000 in 1924. New buildings and additions made possible through the bond issue have provided sittings for 6,270 pupils in place of 5,840 pupils as previously estimated.

The figures show that the elementary schools have an actual capacity of 1,480 in place of 1,420 as estimated. The intermediate schools have an actual capacity of 2,900 in place of 2,550 as estimated.

—Seattle, Wash. Two new elementary

-Seattle, Wash. Two new —Seattle, Wash. Two new elementary schools, one accommodating 360 pupils, and the other 760 pupils, have been occupied since September. All of the new buildings in the last building program have been occupied, with the exception of the Cleveland High School and two intermediate schools. intermediate schools.

intermediate schools.

The building program, which was begun in 1925, has been effective in reducing the number of children attending school in portables and temporary buildings. In 1925, when the new buildings were authorized by the voters, 5,000 pupils were cared for in temporary and portable buildings. A recent check shows that the completion of the new program leaves 3,200 pupils in these types of schoolrooms.

A careful survey of present and future building needs is now being made in order to determine the schools still in need of additional facilities. With the completion of the survey, a new building program representing the matured judgment of the members will again be submitted to the voters.

—Quincy, Fla. Construction work has been begun on a large consolidated school in District No. 16, Mt. Pleasant. The building will contain twelve classrooms, an auditorium, and an office, and will cost \$50,000 complete.

—A new high school has been occupied at

—A new high school has been occupied at Greenwich, Conn. The building houses 750 pupils and was erected at a total cost of \$1,046,550.

—Norwalk, Conn. Supt. John Lund has pre-sented a tentative building program to the board sented a tentative building program to the board of education. The program involves seven different projects and is to be distributed over such a period of years as may be necessary. Included in the building program are a junior high school, a senior high school and five elementary schools. A bond issue of \$450,000 will be requested of the 1926-1927 legislature for the constitution of the invite schools.

be requested of the 1926-1927 legislature for the erection of the junior high school.

—Oneida, New York, has appropriated \$325,-000 for a new high school. Mr. Wilson Potter, New York, N. Y., is the architect.

—Forestville, N. Y. An appropriation of \$150,000 has been made for a new school.

—The upkeep of school property at Sacramento, Calif., is in charge of a department of skilled mechanics, who are assigned to the school shops under the direction of Mr. R. Rodgerson. The repair department is constantly employed during the year in repairing desks, floors and the like. In a year's time the wear and tear on the buildings is heavy and repairs must be made promptly. Through systematization, the shops are able to function at a big saving to the city promptly. Through systematization, the shops are able to function at a big saving to the city and at the same time keep the school property

and at the same time keep the school property at a high state of efficiency.

—The Woodrow Wilson high school at Weehawken, N. J., was occupied in September, 1926. The building is three stories high, contains an auditorium, a gymnasium, an administration office, and library and was erected at a cost of \$410,000. The plans for the building were made by Mr. William Weir, and the construction work was under the direction of Mr. John J. Marione.

—The board of education of Denver, Colorado, with the completion of its present building program, has decided to inaugurate a pay-as-you-go policy in the financing of new school construction. struction.

charge or obligation

The board believes that it is now possible to establish a pay-as-you-go plan and to keep caught up in the matter of building needs. As a step in this direction, the board has included in its budget for 1927 an amount sufficient to meet new building needs as they arise. The change involves an increase in taxes above the five per cent increase which the board is allowed to make, and will mean that a fund of approximately \$500,000 will be available each year for new schools.

mately \$500,000 will be available each year for new schools.

—Bonds have been sold for the erection of a high school at Port St. Joe, Fla. The building will be completed June first, at an estimated cost of \$25,000.

-A bond issue of \$250,000 for a new high

 A bond issue of \$250,000 for a new high school was approved at San Luis Obispo, Calif, in November. The present high school building will be remodeled for use as a junior high school.
 Hollidaysburg, Pa. The citizens recently voted on a bond issue of \$100,000 for new school construction. With the completion of the building program, half-time classes will be eliminated and the high school will have an additional room. tional room.

-Chicago, Ill. Of the \$21,000,000 building

—Chicago, Ill. Of the \$21,000,000 building program for 1927 recommended by Supt. William McAndrew, the building committee has approved \$12,000,000 of the most necessary construction.

—Houston, Tex. A total of 24 school building projects have been completed, or are under way since the school bond issue was passed, according to Mr. H. D. Payne, school architect. Approximately \$2,000,000 worth of contracts have been awarded through the school architect's office and more than \$750,000 worth of work has been done through other sources on old junior high schools. About \$1,250,000 remains of the bond issue, which amount will be spent for new buildings, remodeling, and general spent for new buildings, remodeling, and general

repair work.

—Mr. W. W. Rose has been appointed to have charge of the school construction work for the board of education at Kansas City, Kans. The principal work next year will be the construc-

(Continued on Page 113)



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Franklyn R. Muller, Inc., is the oldest and largest manufacturer of magnesia flooring — a flooring that should not be confused with mastic or any other flooring on the market. This is your protection.



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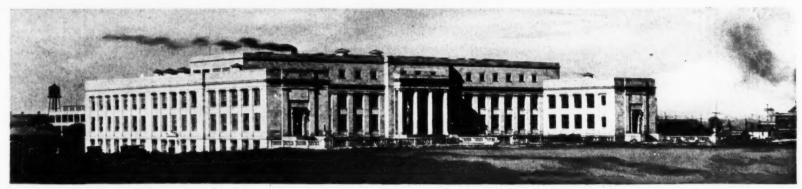
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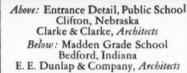
The NATION'S BUILDING STONE



Central High School, Columbus, Ohio Wm. B. Ittner, Architect







INDIANA LIMESTONE A WISE INVESTMENT FOR SCHOOL FUNDS

INDIANA Limestone, combining permanence and beauty with moderate cost, is the ideal material for the trim of modern school structures. It imparts a delightful contrast and feeling of refinement to rough-textured walls of other materials, which they would not otherwise possess.

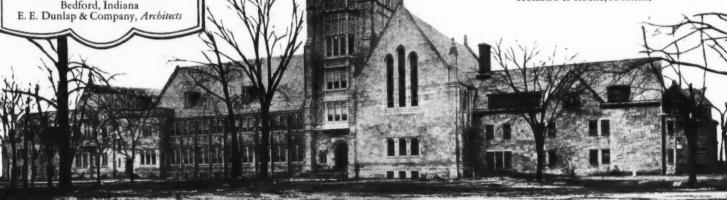
It is suitable for use in school buildings for small as well as large communities, and is recommended as the standard material wherever substantial structures of beautiful and dignified appearance are desired.

Large quantities of Indiana Limestone are also used for facing the entire walls of the finer types of school and college buildings. New ways of using this stone in the form of rough-sawed Random Ashlar or range work enable the building of all-stone faced schools at surprisingly low cost.

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Medart Playground Apparatus is recognized as having outstanding merit. It is built on those basic principles which time and long experience have proved sound. It is safe for the children to use—withstands use, abuse, wear and weather—is therefore the most economical to buy. Send for Playground Catalog, fully illustrating the entire line and pointing out the superior points of each piece.

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LOS ANGELES

Also Manufacturers of Steel Lockers-See Announcement on Page 119

(Continued from Page 110)

tion of an addition to the Central Junior High

School.
—St. Louis, Mo. The school board recently retired \$15,000 in bonds, which makes a saving of \$401,918 in interest on bonds retired before maturity since March, 1924. The bonds were part of a \$3,000,000 issue maturing in January, 1937 and 1938, and July of 1939. The aggregate of those bought back and retired by the board is \$761,000. At the present time, the board has \$589,000 in the sinking fund, more than enough to care for the first block of bonds maturing in January, 1937. maturing in January, 1937.

—Atlanta, Ga. A petition for a referendum on a proposal to merge the school systems of East Point and College Park with the Fulton County school system was presented to the city council. It is planned to consolidate several small schools in the county system and to furnish means of transportation to such students as live at some distance from the school dents as live at some distance from the school.

—Chicago, Ill. The construction of 51 school buildings, all now occupied, has been accomplished by the board of education since April, 1923, and seventeen additional buildings will be ready for use by April, 1927, according to a report of Mayor W. E. Dever to the city council. The new schools provide 1,180 classrooms, in addition to assembly halls, gymnasiums, shops, laboratories, and lunchrooms. The total added seating capacity is 59,156 and the total expenditure for construction and equipment was \$45. ture for construction and equipment was \$45,-

At the present time there are approximately forty sites under condemnation and the build-ing program for 1927 contemplates opening at least 32 new buildings on sites already acquired. The schools have been rendered more safe by the installation of over \$500,000 worth of safety appliances.

It is pointed out that a great saving has been made in school construction through standard types of buildings and equipment.

-New Haven, Conn. A total of \$294,386 has been expended on new school construction, according to a financial report for the period from January 1st to October 31st.

-Toledo, O. The board of education has approved plans for a second junior high school to cost \$1,000,000. The school will accommodate

2,000 students and will relieve congestion in the

elementary schools.

—Minneapolis, Minn. Supt. W. F. Webster has outlined a \$10,000,000 school building program which will provide adequate accommoda-

gram which will provide adequate accommodations for a five-year period.

Under the plan, all residential districts, from elementary to high school, would be provided with school accommodations to take care of the maximum probable enrollment from each district. While it is planned to have the major part of the buildings erected during the next five years, construction work will be adented to the years, construction work will be adapted to the demand for school requirements.

—A new high school is nearing completion at North Baltimore, O.

—Akron, O. Plans have been completed for a new building to replace the Spicer School.

—Berea, O. Construction work has been be-

—Berea, O. Construction work has been begun on a new high school to cost \$650,000.

—Newtown, O. The cornerstone of a new school was laid on November 21st.

—The cornerstone has been laid for the new

—The cornerstone has been laid for the new Baltimore City College at Baltimore, Md.

—New Philadelphia, O. Plans have been prepared for a new school at Stonecreek, O., to include a four-year high school.

clude a four-year high school.

—Zanesville, O. A site has been selected for the new high school to be erected in West View.

—New York's school building program for 1927 is being planned. Following a conference between President George J. Ryan of the board of education and Mayor Walker, it was announced that the sum of \$25,000,000 would be set aside for new school buildings.

—The American Legion Post of Chattanooga County, Georgia, in cooperation with the parent-

County, Georgia, in cooperation with the parent-teacher association and several citizens of Summerville, has formed a stock company with a capital stock of \$3,500 for the purpose of building a gymnasium and basketball court. The local high school athletic association, under an agreement, has the use of the court by paying the company one-half the door receipts at match

games.
—Pueblo, Colo. On November 23rd, the citizens approved a bond issue of \$462,000 which will be used for a new school building, for taking up outstanding six per cent warrants, and for refunding outstanding bonds. The first proposition received an endorsement of 5 to 1 the second, 7 to 1, and the third, 8 to 1.

-A school bond election was held at Jamestown, New York, on December 3rd, which resulted in the approval of a bond issue of \$750,000 for new high schools. At the election, about 2,450 votes were cast, with a majority of 741 for the first proposition, and 549 for the second

A suit brought to enjoin the school board of the Marathon Consolidated School District of Iowa from selling and issuing \$25,000 worth of bonds to build an addition to the present school, has been dismissed by the Buena Vista County Court. The election was held last spring and the bond proposition carried by a small majority.

majority.

—Grundy, Va. A new \$65,000 high school building is being erected here under the direction of the school trustees. It will contain fourteen classrooms and a large auditorium.

That the construction of new modern school buildings is still in progress in Virginia is evidenced by the following list of schoolhouses that are nearly ready for occupancy: Six-room brick building at Micheltown, Bath county; twenty-room brick building at Fincastle, Botetourt county; twelve-room brick building at Hillsville, Carroll county; four-room and auditorium at Turbeville, Halifax county; five-room and auditorium at Dayton, Rockingham county; thirteenroom brick combination at Manassas, Prince William county. William county.

William county.
—San Diego, Calif. At the suggestion of the board of education, Supt. W. J. Cooper has begun work upon a survey of the physical properties of the school district, preparatory to bringing to the voters the need of a bond issue. The scoring of school buildings has been undertaken by the principals of the different buildings, under the direction of Prof. Frank W. Hart of the University of California.

-The school authorities of Springfield, Mass.,

—The school authorities of Springfield, Mass., were stirred by a survey report that nineteen school buildings were unsafe. Action is to be taken immediately to remedy this evil.

—Tampa, Fla. During the year 1926-27 the school board plans to spend more than \$5,000,000 for the expansion of the school plant to take care of a rapidly increasing population. While the program is one of the most elaborate ever undertaken by a city of its size, it is based upon a survey of the city's present needs and its potential needs for several years to come.

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Watts 75 to 150	Skt. Med.	Ref. 1236"	Size 8%" x 4"	No. Price B2820 \$5.90	No. Price B2823 \$6.45		
200 300 to 500	Med.	175	1136" x 5"	B2821 8.35	B2824 8.90 B2825 12.80	B2827 11.10	B2830 10.55

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Following the voting of \$1,000,000 in bonds last year, Tampa has this year voted another issue of \$3,500,000, and two-thirds of this have been spent, or will be spent, for buildings already erected, or contracted for, leaving about \$1,000,000 to be spent next year.

The contracts for new buildings and for additions to buildings let this year total fifteen and

tions to buildings let this year total fifteen, and by the opening of the 1927 session, the school capacity will have been doubled over that of

—The Circuit Court of Rusk County, Wisconsin, has refused to grant a restraining order against the new school building in Wilkinson township since the building is substantially completed. The court made its decision despite the fact that the borrowing of \$4,000 to erect the school had been ruled illegal.

—Supt. Carroll R. Reed of Bridgeport, Conn., has presented a five-year building program to the board of education, together with a statement of the present conditions and the anticipated housing needs of the school system.

Under the program outlined, it is estimated the immediate needs of the schools will demand at least \$960,000 during the next two years. If the building program is adhered to, the school system will need \$1,000,000 in 1929 and \$1,500, -The Circuit Court of Rusk County, Wiscon-

system will need \$1,000,000 in 1929 and \$1,500,000 in 1931.

It is pointed out that unless a building program is adopted and financed for a period of years, the housing situation will be much worse in five years. At present there are 2,500 children in unsuitable rooms and 1,200 in part-time classes. There are 3,700 children who are not receiving adequate opportunities in education.

New School for Gary, Indiana
According to Architect Wm. B. Ittner of St.
Louis, construction work on the new Horace
Mann School at Gary, Indiana is well under way.
The building is scheduled for completion January 1, 1928. In general, the plan of the new
school follows that of the Emerson and Froebel,
but includes changes and improvements which
have developed since these buildings were designed.

Like the Emerson and the Froebel, the building is planned for all grades and for Superintendent Wirt's work-study-play plan. Its working capacity will be approximately 3,000 students, and its cost \$825,000.

That it pays to buy sites in advance is proved by this seventeen-acre site, which was purchased in 1917, for \$22,000. Its present valuation is

THE SEATTLE BUILDING PROGRAM
The school board of Seattle, Washington, has issued a report on its building program for 1925-1926, showing a total of five new schools and three additions erected at a cost of \$2,-022 100

22,100.

Building Program of Seattle School District for

	13/40-		
School School	quare Feet	Cubic Feet	Appr. Cost
Ballard High School	•		
(addition)	22,600	355,000	\$124,000
Franklin (addition)	20,000	325,000	142,000
Grover Cleveland			
High School	93,300	1,865,000	497,700
Alexander Hamilton	95,000	1,606,000	433,300
John Marshall	94,000	1,564,000	438,600
West Woodland	/		
Grade (addition).	14,300	296,000	116,000
Bryant Grade (new)	38,000	593,000	164,000

West Woodland
Grade (addition). 14,300 296,000 116,000
Bryant Grade (new) 38,000 503,000 164,000
The board is at work on its new program for 1927-1928, which it is estimated will exceed two million dollars. This program will include additions to two high schools, one new intermediate school, and units or additions to five or more grade schools.

ADOPTS STANDARD SCALE OF CHARGES FOR PUBLIC USE OF SCHOOLS
—The school board of Kenosha, Wis., has adopted a recommendation of Supt. G. F. Loomis, providing for a standard scale of charges for the use of school buildings for community, social, and recreational activities. In adopting the charges, the board took into consideration the school auditoriums and gymnasiums from the grade schools to the senior high school. All of the buildings are available for non-political and non-sectarian use only.

In many cases, the prices charged for the school auditoriums and gymnasiums are set at a price less than the actual cost to the board in maintaining and operating the building. Where no admission fee is charged, the school board assumes half of the expense connected with the use of the building. Where admission is charged an increase in the rental is asked.

In the senior high school the schedule is as follows: For the use of the large auditorium, \$100 if no change of scenery or stage help is required; \$150 with extra help. The auditorium for rehearsals will cost \$50.

High school gymnasium—large gymnasium, if no admission is charged, \$15; if admission is

charged, \$25; small gymnasium, if admission is charged, \$25; small gymnasium, if no admission is charged, \$10; with admission, \$20.

Music room, high school, if no admission is charged and no extra heat, \$5.00; if admission is charged or special heat required, the rental rate is \$10.

Auditorium

Auditorium or gymnasium, all junior high schools, \$10.00 without an admission charge and \$20 with an admission charge.

All other school buildings are to have special rates according to the number of rooms used and the type of affair to be staged.

All of the programs staged by the recreation department are placed in the gymnasium and auditorium at the expense of the recreation

system.

The rules of the board with regard to the use The rules of the board with regard to the use of the various buildings are specific. No public school building is to be used for private gain, and no school or equipment will be permitted to be used on Sunday. No admission in excess of fifty cents is to be charged except in the senior high school auditorium. high school auditorium.

EMPLOYMENT OF OUTSIDE TEACHERS

—The school committee of Lawrence, Mass., has adopted a rule whereby no outside persons can be employed as teachers. The Telegram, a local newspaper, in criticizing the rule, says: "Now, it is a splendid home-loving, talent-seeking rule to have nobody but Lawrence men and women employed in our schools. There is not a single person who lives in Lawrence or who is loyal to Lawrence who will not applaud such a sentiment. But, as a practical matter, it seems absolutely ridiculous and laughable to pass a sentiment. But, as a practical matter, it seems absolutely ridiculous and laughable to pass a rule such as has been recently passed. This rule says, in effect, that we've got to bind ourselves with iron fetters lest we "slop over" and some day find a more fit and proper candidate for a position in our schools in Andover, Methuen or North Andover than we have at home, a better result-giving teacher to take charge of the destinies of those who seek an education in our lower or higher grades of study. More laughable still is the fact that next year five members may be in office who can next year five members may be in office who can come together and make this rule a scrap of paper."



Two-Fold Protection

Wooster Safe-Groove Stair Treads give two-fold protection in a school building.

When Wooster Safe-Groove Treads are installed on stairways, ramps and thresholds, the occupants are protected from accidents and the points where foot traffic is heaviest are likewise safeguarded against disfiguring wear.

The deep longitudinal grooves and the alternate ribs of carborundum wear slowly and evenly, protecting the surface on which they are laid for many years without repairs.

Wooster Safe-Groove Treads are easily installed on new or old stairway of any material.

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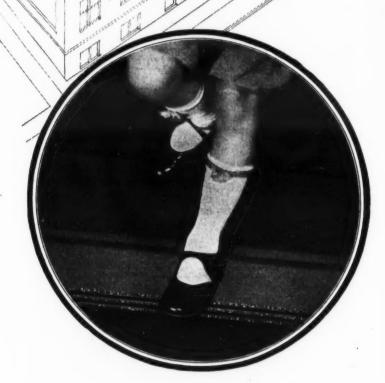
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The true measure of the cost of lockers is the cost per year of service. It is on that basis of judgment that school board officials selected Berloy Steel Lockers for the new High School building at Charleston, W. Va.

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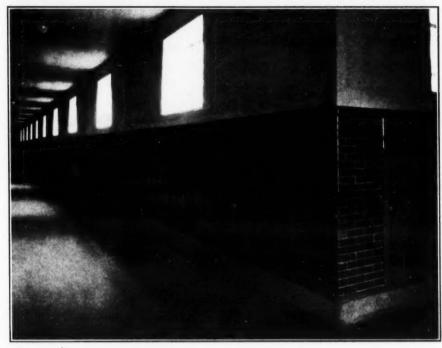
New York

Minneapolis Jacksonville

San Francisco

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A SECTION OF BERLOY SINGLE TIER LOCKERS INSTALLED IN CORRIDOR WALLS OF NEW HIGH SCHOOL, CHARLESTON, W. VA.

OCKE (B) BERLOY

SCHOOL BUILDING PROGRAMS IN THE CITIES OF THE UNITED STATES

The following tabulation is the result of an inquiry concerning the present building program in cities of 2,500 population and upward, throughout the United States. Cities which have no buildings under construction at present and

which do not expect to erect buildings in 1927 are omitted from the list. A complete summary of the tabulations will appear in the February number of the SCHOOL BOARD JOURNAL.

Buildings Under Construction Proposed 75,000

ALABAN	IA	
Bu	ildings Under	Buildings
	onstruction	Proposed
Alabama City	34.000	\$ 60,000
Andalusia	125,000	
Florala		25,000
G 1 1	70,000	
	150,000	30,000
Huntsville	16,000	00,000
Mobile	10,000	100,000
Opelika	******	60,000
Ozark		
Union Springs	*******	75,000
ARIZON		
Flagstaff	8,500	* * * * * * * *
Globe	1,500	
ARKANS		
Crossett	5,000	
Fayetteville		\$ 25,000
Marianna	45,000	
Pine Bluff	850,000	
Prescott	40,000	25,000
Stuttgart		30,000
		001000
CALIFOR		
Anaheim	20,000	
Bakersfield	112,000	********
Brawley	23,400	\$ 14,000
Calexico	316,000	*******
Coalinga		47,000
Corona		125,000
Coronado		440.000
Fresno	515,000	380,000
Hayward	1,000,000	70,000
Hollister	30,000	30,000
Huntington Park	320,000	40,000
Long Beach	13,000	50,000
	5,324,000	3,971,000
Los Angeles	400,000	0,011,000
Marysville	125,000	
Modesto	122,000	
Monrovia		90,000
Monterey	700 000	50,000
Napa	700,000	2,763,000
Oakland	2,041,000	
Orange	54,000	60,000
Pasadena	425,000	135,000
Petaluma		********
Redlands	******	355,000
Redding	330,000	******
Richmond	950,000	85,000
Riverside	******	1,300,000
Salinas	80,000	
San Bernardino	135,000	250,000
San Francisco	4,580,000	1,450,000
San Leandro	387,000	-11
San Luis Obispo	2011000	320,000
San Mateo	408,000	020,000
	30,000	25,000
San Rafael		
Santa Barbara	200,000	350,000

City	uildings Under Construction	Buildings Proposed
So. Pasadena	400 000	75,000
So. San Francisco	180,000	*******
Watsonville		200,000
Whittier		******
Primbton COLORA		
Brighton		0.47 000
Denver		845,000
Englewood		
Grand Junction		*****

Greeley Lamar		******
		* * * * * * * *
Montrose		100 000
Pueblo		100 000
		75,000
Sterling CONNECT		19,000
Bridgeport	\$ 700,000	\$ 800,000
Bristol	95,000	\$ 500,000
Canton	128,000	
Central Village		60,000
Danielson		00,000
Deep River		
East Windsor		
Farmington		190,000
Hartford		200,000
Middletown		
New Britain		250,000
New Haven	1,400,000	
Norwich	225,000	
Orange		100,000
Plainville	200,000	******
Ridgefield		90,000
Simsbury	*******	200,000
Southington		*******
South Norwalk	*******	450,000
Suffield	216,900	15,000
Thompsonville		375,000
Torrington	69,000	050 000
West Hartford		250,000
Wethersfield		250,000
Willimantic		345,000
Winsted DELAW		949,000
		\$ 500,000
Wilmington DISTRICT OF		\$ 500,000
Washington	\$ 1,950,000	\$ 2,515,000
FLORI	DA	Ψ 2,010,000
Arcadia		
Bartow	1,120,000	\$ 115,000
Dade City		270,000
Fort Myers	380,000	400,000
Inverness		********
Jacksonville		
Key West		150,000
		22-1-1-1

	Buildings Under	Buildings
City	Construction	Proposed
Fernandina		150,000
La Belle	35,000	35,000
Madison		160,000
Marianna		1,120,000
Orlando		716,000
Perry		50,000
Quincy	6,000	90,000
Sanford	425,000	105,000
Stuart		180,000
Tallahassee		********
Tavares	247,000	650.000
White City		65,000
GEO	RGIA	
Atlanta		\$ 560,000
Cuthbert	**** ******	5,000
Dawson		********
Dublin		50,000
East Point	**** *******	7,000
		75,000
Monroe		*******
Macon		02 000
Rome	39,000	93,000
Summerville	00 000	4,000
Waynesboro	80,000	******
Idaho Falls		\$ 75,000
Lewiston		275,000
		55,000
Pogatello		36,000
Pocatello	NOIS	30,000
Aurora, E	NOIS	\$ 300,000
Aurora, W		30,000
Batavia		65,000
Berwyn, No. 98	\$ 40,000	8,000
Batavia Berwyn, No. 98 Chicago	9,150,000	13,000,000
Clinton	175,000	17,000
		100,000
Decatur Downers Grove		250,000
Dwight		
Freeport		
Galesburg	80,000	
Glencoe	225,000	130,000
Pinckneyville	100,000	
Herrin		100,000
Jacksonville	218,000	100,000
Joliet	190,000	
La Grange		106,000
Lyons		34,000
Mound City		40,000
Murphysboro	505,000	******
North Chicago	50,000	
Peru		70,000
Quincy		*******
Robinson	3,500	100,000
Rockford	1.000,000	******
Springfield Sycamore	160,000	150,000
Sycamore	125,000	
Urbana		
Waukegan	340,000	******
Wilmette	55,000	******
	IANA	
Anderson		\$ 70,000
Attica		
Auburn	900,000	1,500
Bloomington	800,000	250,000
Covington	110,000	200,000
(Continued o	n Page 118)	*******
(Continued o	ii rage rio)	

Electricity and Glass have combined to give a light approaching Daylight

The genius of Edison—the unceasing labor of highly skilled scientists—the expenditure of millions of dollars, have resulted in the production of the most wonderful device for artificial lighting ever made by man—the newest types of MAZDA electric lamps.

These new lamps give so much light, that it is necessary to modify and control their brightness, for the same reasons that the blue sky and the white clouds are needed to temper the powerful rays of the sun.

And so the glass industry, which for thousands of years has supplied necessities and luxuries for advancing civilization, has come forward with a new kind of glass called "CELESTIALITE"—a patented glass of three layers—clear, translucent white, and blue (corresponding in their effect to the clear air, the white clouds and the blue sky). Combined—the new lamps and the new glass give a light approximating the best of all light—Daylight.

Install Celestialite so that you, too, may have the complete satisfaction that comes from having a perfect light. Celestialite will pay daily dividends in better working conditions and increased efficiency.

Write for free fragment showing the unique construction of Celestialite glass.

Celestialite Division

GLEASON-TIEBOUT GLASS CO.
Fifth Avenue Bldg. New York City



1. The Clear Air



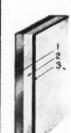
2. The White Clouds



3. The Blue Sky

The three layers of CELESTIALITE

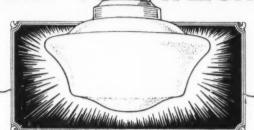
Crystal clear like the air.



2. Translucent white like the clouds.

3. Rectifying blue in the blue sky.

CELESTIALITE
NEXT TO DAYLIGHT









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Organization of Efficient Program of Rooms Preparation of Economical Room Layouts Criticism of Sketch Plans

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Member A. S. M. E .-- A. S. H. & V. E.

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Duluth, Minn.

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Municipal, County & School Bonds

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CHICAGO

Buildings Under Buildings

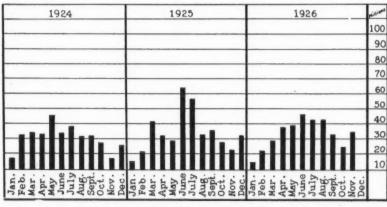
(Continued from Pauld	age 116) lings Under	Buildings
City Con	struction	Proposed
Crawfordsville 1	.160,000	
Delphi	125,000	
East Chicago		250,000
Elkhart	150,000	
Elwood	82,500	
Evansville	380,000	240,000
Fort Wayne 1	.090,000	200,000
Garrett		35,000
Gary 1	.270,000	140,000
Goshen		100,000
Greenfield	175,000	
Huntington	100,000	
Indianapolis	710,000	1,550,000
Y.C 1		350,000
Logansport	105,000	
Madiana		175,000
Martinsville	75.000	
Mishawaka	150,000	
Portland	160,000	
Richmond	230,000	75,000
Salem	210,000	*******
Houmann	1	60,000
Terre Haute	750,000	00,000
	2.050,000	
Valparaise	200,000	
Whiting	130,000	
IOWA	100,000	
Clear Lake\$	40.000	
Cities and control of the control of	100,000	

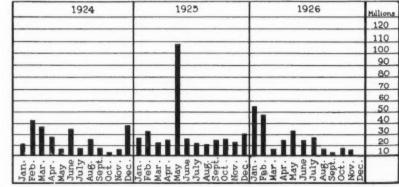
Garrett 35,000 Ashland Gary 1,270,000 140,000 Covington Goshen 100,000 Fort Thomas Greenfield 175,000 Hantington Glasgow Huntington 100,000 Harrodsburg Indianapolis 710,000 1,550,000 Henderson Kokomo 200,000 Lexington Louisville Madison 175,000 Mayfield Mayfield Martinsville 75,000 Morganfield Newport Portland 160,000 Newport Paducah Richmond 230,000 75,000 Richmond Seymour 60,000 Alexandria Versailles Tipton 2,050,000 Benton Alexandria Tipton 2,050,000 Boyce Franklinton Valparaiso 200,000 Benton Lafayette Clinton 1,160,000 Salon Lacayette Cinton 1,500,000 Marksville Marksville Newton <th>Fort Wayne</th> <th>1.090.000</th> <th>200,000</th> <th>Ottama IIIIII</th>	Fort Wayne	1.090.000	200,000	Ottama IIIIII
Gary	Carrett	-1		Ashland
Goshen	Carv	1 270 000		
Greenfield	Coshen			
Huntington	Croonfield	175 000		
Indianapolis	Huntington			
Schome	Indianapolis			
Logansport	Voltante			
Madison 175,000 Mayfield Martinsville 75,000 Morganfield Mishawaka 150,000 Newport Portland 160,000 Paducah Richmond 230,000 75,000 Salem 210,000 Versailles Seymour 60,000 Henton of Terre Haute 750,000 Benton Valparaiso 200,000 Benton Whiting 130,000 Franklinton Clear Lake 40,000 Lafayette Clinton 1,160,000 Marksville Fort Dodge 16,000 Marksville Fort Dodge 16,000 Natchitoches Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 New Orleans Waterloo (East) \$ 120,000 St. Joseph Chanute 230,000 Winnfield Concordia 250,000 Winnsboro	Tomomonout	105 000		
Martinsville 75,000 Morganfield Mishawaka 150,000 Newport Portland 160,000 Paducah Richmond 230,000 75,000 Richmond Salem 210,000 Versailles Seymour 60,000 Alexandria Tipton 2,050,000 Benton Valparaise 200,000 Boyce Whiting 130,000 Franklinton Clear Lake 40,000 Lafayette Clinton 1,160,000 \$ 135,000 Marksville Fort Dodge 16,000 Marksville Minden Mason City 350,000 Natchitoches Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas Arkansas City \$ 120,000 St. Joseph Chanute 230,000 Winnfield Concordia 230,000 Winnfield Dodge City 335,000 Winnsboro	Madiana			
Mishawaka 150,000 Newport Portland 160,000 Paducah Richmond 230,000 75,000 Richmond Salem 210,000 Versailles Seymour 60,000 Alexandria Tipton 2,050,000 Benton Valparaiso 200,000 Boyce Whiting 130,000 Franklinton Clear Lake 40,000 Lafayette Clinton 1,160,000 135,000 Lecompte Council Bluffs 125,000 Marksville Fort Dodge 16,000 Morroe Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas Port Allen \$t. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnsboro	Madison			
Portland	Martinsville			
Richmond 230,000 75,000 Richmond Salem 210,000 75,000 Richmond Seymour 60,000 Alexandria Tipton 2,050,000 Benton Valparaise 200,000 Boyce Whiting 130,000 Franklinton Clear Lake 40,000 Lafayette Clinton 1,160,000 \$ 135,000 Lecompte Council Bluffs 125,000 Marksville Fort Dodge 16,000 Minden Mason City 350,000 Natchitoches Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas Port Allen St. Joseph Chanute 230,000 Vidalia Concordia 230,000 Winnfield Dodge City 335,000 Winnsboro	Mishawaka			
Salem 210,000 Versailles Seymour	Portland			
Seymour			75,000	
Terre Haute		210,000		Versailles
Tipton	Seymour	******	60,000	
Valparaiso 200,000 Boyce Whiting 130,000 Franklinton Clear Lake 40,000 Lafayette Clinton 1,160,000 \$ 135,000 Lecompte Council Bluffs 125,000 Marksville Fort Dodge 16,000 Marksville Mason City 350,000 Monroe Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas Arkansas City \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro	Terre Haute			
Valparaiso 200,000 Boyce Whiting 130,000 Franklinton Clear Lake 40,000 Lafayette Clinton 1,160,000 \$ 135,000 Lecompte Council Bluffs 125,000 Marksville Fort Dodge 16,000 Marksville Mason City 350,000 Monroe Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas Arkansas City \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro	Tipton			
Whiting	Valparaiso	200,000		Boyce
Clear Lake	Whiting			
Clear Lake	IOWA			Jena
Clinton 1,160,000 \$ 135,000 Lecompte Council Bluffs 125,000 Marksville Fort Dodge 16,000 Minden Mason City 350,000 Monroe Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas KANSAS \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro				Lafayette
Council Bluffs 125,000 Marksville Fort Dodge 16,000 Minden Mason City 350,000 Monroe Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas Arkansas City \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro	Clinton			Lecompte
Fort Dodge	Council Bluffs			
Mason City 350,000 Monroe Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas KANSAS \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro	Fort Dodge			
Newton 175,000 Natchitoches Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas Arkansas City \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro	Mason City			
Tama 100,000 New Orleans Waterloo (East) 125,000 Opelousas KANSAS \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro	Newton	175,000		Natchitoches
Waterloo (East) 125,000 Opelousas Port Allen Arkansas City \$ 120,000 \$t. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro		100,000		New Orleans
KANSAS				
Arkansas City \$ 120,000 St. Joseph Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro				
Chanute 230,000 Vidalia Concordia 250,000 Winnfield Dodge City 335,000 Winnsboro			\$ 120,000	
Concordia	Chanuto	******		
Dodge City				
1004	Douge City		000,000	Winnsboro
	1924	1025		1926

City	Buildings Under Construction	Buildings Proposed
lays		
Kansas City		175,000
Lyons	118,950	******
McPherson		50,000
Newton	250,000	******
Dlathe		175,000
Ottawa	75,000	210,000
	UCKY	
Ashland	\$ 66.000	\$ 125,000
Covington		
Fort Thomas		30,000
Blasgow		30,000
Harrodsburg		
Henderson		
Lexington		415.000
Louisville		2,500,000
Mayfield		50,000
Morganfield		30,000
Newport	DOW DOD	50,000
Paducah	A A Ch chick	
Richmond	00.000	
	400 000	
	SIANA	******
Alexandria		
		80,000
Benton		
Boyce		
Franklinton		80,000
Jena		100,000
Lafayette		
Lecompte		000 000
Marksville		229,000
Minden		75,000
Monroe		
Natchitoches		60,000
New Orleans		1,100,000
Opelousas		90,000
Port Allen		
St. Joseph		
Vidalia	60,000	
Winnfield		285,000
Winnsboro	96,000	

l	City Construction	Proposed
	MARYLAND	
)	Annapolis\$ 30,000	
	Baltimore 1,900,000	\$ 1,400,000
)	Easton 55,000	
	Frederick 25,000	
)	Westminster 55.000	60,000
)	MASSACHUSETTS	
	Amherst	\$ 20,000
)	Auburn\$ 70.000	
	Belmont 270,000	
1	Boston 1.000,000	3,000,000
1	Braintree 550,000	25,000
•	Chicopee	525,000
1	Cohasset	
	Dartmouth	150,000
	Duxbury	
	Falmouth	150,000
	Gardner	
	Hingham 375,000	
	YY -111 -4	40,000
	Hollyoke 70,000	625,000
	Hyannis	60,000

		F00.000
!	Malden	500,000
,	Medford	565,000
,	Middleboro 175,000	********
)	Milford	400,000
	New Bedford 650,000	1,200,000
	Peabody 125,000	
)	Pembroke 15,000	******
)	Randolph	100,000
	Reading 425,000	
)	Revere 57,500	
)	Stoughton	150,000
)	Swampscott	80,000
	Taunton 100,000	
	Waltham 476,510	
	Wareham	4.500
)	Webster 450,000	
	(Continued on Page 121)	
	,	







In the Finest Schools

Medart Steel Locker installations are in keeping with the finest fittings and furnishings in our educational institutions. Medart Quality is unquestioned—recognized as the standard by which all lockers are judged. The economy of Medart Steel Lockers lies

in the many years of satisfactory service. Finished in green or gray with standard louvred doors. ∞ ∞ Many styles and sizes to meet all requirements.

Write for Medart Locker Catalog describing in detail the entire line.

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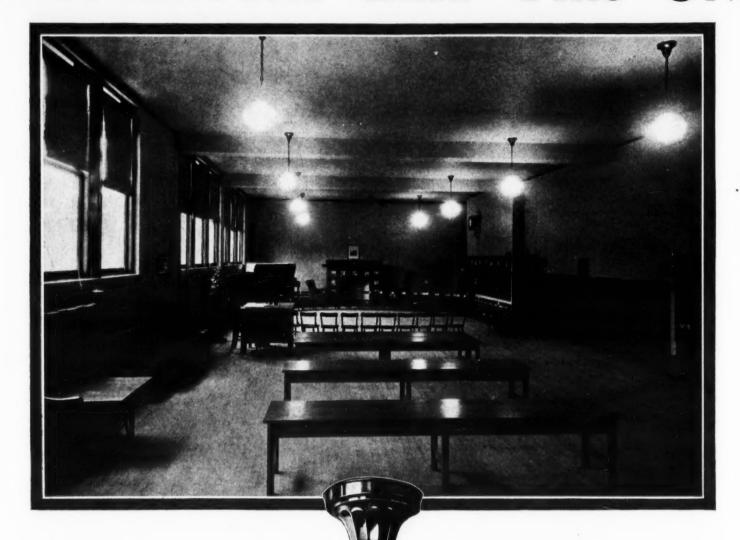
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⋄

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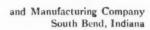
SCHOOLROOMS LIKE THIS ONE

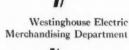


SCHOOLROOMS like this one show that the day of the little red schoolhouse has passed—and also the day of little red schoolhouse lighting. Modern educators have found the value of good, glareless lighting in the schoolroom. That is why, everywhere in the country, Sol-Lux units are chosen for schools.

Sol-Lux has many features that

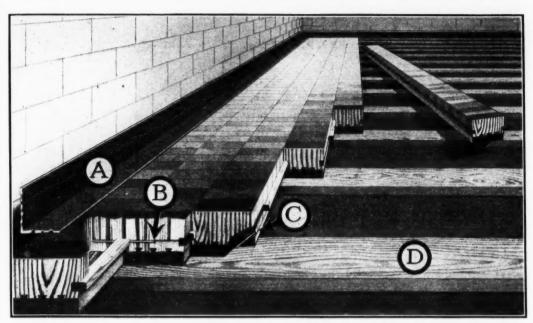
recommend it to thoughtful purchasers. There's the special diffusing glass that provides a soft, comfortable light, yet does not seriously decrease the illuminating efficiency of the unit. There's the dust proof globe, and the tilt out cap that makes cleaning and relamping easy. Let our nearest office give you complete information and specifications.







- and it cannot sliver or splinter



Bloxonend Flooring is specified by leading school architects for gymnasiums and school shops because it is resilient, attractive, durable and stays smooth. Being end grain, Bloxonend cannot sliver—a safeguard worth providing.

- Angle iron covers expansion opening and serves as wall protector. Quarter round or O. G. Mold may be used in lieu of angle iron.
- Bloxonend sections (approximating 8 ft. lengths) broken to illustrate lateral nailing. Provided with special nails in countersunk bores ready for driving.
- Bloxonend sections toe-nailed through base into floor-strips. When toe-nailed, lateral nailing may be eliminated.
- Ploor strips recommended only when maximum resiliency required. Ordinarily Bloxonend is laid directly over concrete by lateral nailing without sleepers.

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Lays FLOORING Smooth

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WASHINGTON, D. C.
700 Insurance Bldg.
SAN FRANCISCO
639 Howard St.

Building Propose 255,00	dings Under		uildings Proposed	dings Under enstruction 215.000		Buildings Proposed	Page 118) ildings Under onstruction	City
300,00		Red Bank		252,000	Maplewood	200,000		ellesley Hill
525.00		Roselle		300,000	Mexico	325,000	180,000	eymouth
	330,000	Ridgefield Park		160,000	Neosho		285,000	hitman
175.00		Ridgewood		90,000	Palmyra		145,000	nchester
*****	1.967,231.30	South Orange	20,000		Rich Hill	500,000	500,000	rcester
	600,000	Union City	40,000		St. Joseph	,		MICHIGA
250,0		Westfield	3,190,000	3,445,991.15	St. Louis	\$ 325,000		ian
		West New York	15,000		Sikeston		140,000	ion
	325,000	Wildwood	S	500,000	University City		900,000	tle Creek
60,0	410,000	Woodbury	******	325,000	Warrensburg	7,123,000	5,216,000	roit
	100	NEW MEX		25,000	Webb City		350,000	vagiac
	286,500	Albuquerque	******	202,624	West Plains	875,000	750,000	it
	86,628	Las Vegas		A	MONTAN		300,000	nd Rapids
\$ 25,0	832,000	Portales	\$ 200,000	*******	Glendive	1,660,000		ntramek
4 20,0			150,000		Great Falls		150,000	land
		NEW YO	236,000		Kalispell		247,920	River
	1,500,000	Albany\$			NEBRASI	300,000	1.700,000	kson
\$ 375,0		Amsterdam	8,000	10,000	Beatrice		800,000	sing
	380,000	Babylon	******	24,000	Blair		300,000	nistee
	584,750	Baldwin		250,000	Falls City		475,000	nistique
350,0		Batavia	70,000		Grand Island		21,000	ine City
40.0	400,000	Beacon		455,000	Hastings		475,000	quette
200,0		Canastata	450,000	1.325.000	Lincoln		120,000	land
*****	450,000	Corning (District 13)		1.379,923.26	Omaha		376,000	kegon Heights
	300,000	Dansville			NEVAD		155,000	itiae
150.0	150,000	Depew	\$ 10,000				255,000	er Rouge
110,0		East Aurora		95,000	McGill	150,000	200,000	hester
	315,000	East Syracuse			Tonopah	1,060,000		al Oak
	750,000	Endicott			NEW HAMP	175,000	80,000	lt Ste. Marie
450,0		Granville	******		Berlin	100,000	00,000	ee Rivers
*****	50,000	Green Island		250,000	Dover	10,000		verse City
	340,000	Hastings-on-Hudson		187,896	Lebanon		150,000	andotte
	375,000	Hempstead		20,000	Portsmouth	******	ATA	MINNES
90,0		Herkimer		23,000	Rochester	\$ 125,000	71.74	e Earth
*.****	200.000	Hicksville		SEY	NEW JER		726,315.62	luth
******	127,000	Highland Park		1.200.000	Asbury Park		325,000	eleth
	200,000	Homer		700,000	Atlantic City	******	120,000	gus Falls
	475,000	Huntington	\$ 1,000,000		Bayonne	125,000	120,000	stings
40.0	270,000	Ilion	350,000		Bloomfield		210,000	stings
717.0		Jamestown		50,000	Burlington	1,270,000	958,080	verne
1.400.0		Jersey City		300,000	Camden		31,000	neapolis
1,150,0	27.000	Kenmore		65,000	Cape May		07,000	d Wing
	12,000	Kingston		576,000	Cliffside Park	******	27,000	hardson
	137,000	La Salle		140,000	Dover	200,000	325,000	chester
****	820,000	Laurence	350,000	110,000	East Rutherford	360,000	120 000	Paul
300,6	275,000	Massena	1,030,000			40.000	130,000	Peter
490,0	a 10,000	Middletown	115,000	*******	Elizabeth	40,000	******	ples
	465,000	Mount Vernon	220,000	165,000	Flemington	30,000		o Harbors
*****	925,000	Newburgh	275,000	230,000	Franklin	750,000	******	ginia
****	1.000,000	New Rochelle		271.000	Garfield	100,000		MORE
91 000	17 770 859	New York		394,000	Gloucester City		L. L. I	MISSISSI
21,068,	150,000	North Tarrytown	625,000	560,000	Hackensack	\$ 60,000	190,000	ory
	775,000	North Tonawanda	020,000	460,000	Haddonfield	*******	85,000	y St. Louis
180	150,000	Ordenshurg	275,000	700,000	Haddon Heights	18,000		umbus
150,	211.836	Ogdensburg Olean	210,000	545,454	Irvington	90,000		
		Oneide	325,000		Long Branch	200,000		
	400,000	Oneida	75,000	******	Merchantsville	* * * * * * * *		
0 870	250,000	Oneonta		180 000	Metuchen	150,000		pero
2,550,	844,915	Rochester		150,000	Morristown		Te I	MISSUL
* * * * * *	1,000,000	Salvoy	1,420,000	85,000	Mount Holly	******	\$ 2,300,000	tler
1,000,	125,000	Schenectady		1,473,540	Newark	******	300.000	pe Girardean
	200,000	Sea Cliff		510,000	Newton		240.000	uthersyllie
* * * * *	315,000	Silver Creek	150.000	700,000	North Bergen,	\$ 200,000	225.000	(y t 0 1)
		Southampton	150,000	600,000	North Plainfield		ESCE 4 M M F	HLUH
	2,650,000	Syracuse	700 000	1,850,000	Nutley	******	242 11111	A M A S A S P 22
1,300,	800,000	Tonawanda	700,000	1,500,000	Paterson			
	000,000							
1,300,	450,000	Troy	******	298,000	Perth Amboy		112 (00)	entus
	450,000 289,000	Troy Walden Wellsville	375,000	000 000	Perth Amboy Phillipsburg	350,000	340,000	estus oplin ansas City

FERALUN Anti-Slip Treads

from Coast to Coast are constantly and effectively safeguarding the lives of millions of school children.

National acceptance of Feralun Treads is indicated by the fact that last year 350 schools in 35 States were Feralun protected.

Write for Detail Sheets of Feralun Style "S" Structural Treads.

Buildings Under Construction 100,000

 $\begin{array}{c} 225,000 \\ 70,000 \\ 8,746,697.95 \\ 15,220,674 \\ 4,050,000 \end{array}$

Buildings Proposed

100,000

87,000 100,000 75,000

20.000 52,000

AMERICAN ABRASIVE METALS CO.

50 Church Street, New York

BOSTON 136 Federal Street

PHILADELPHIA 1700 Walnut Street

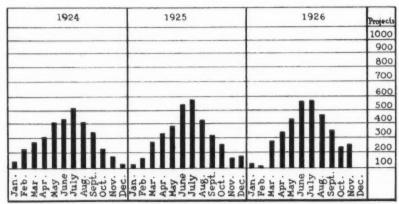
CHICAGO Conway Building

BUFFALO Erie Bank Building

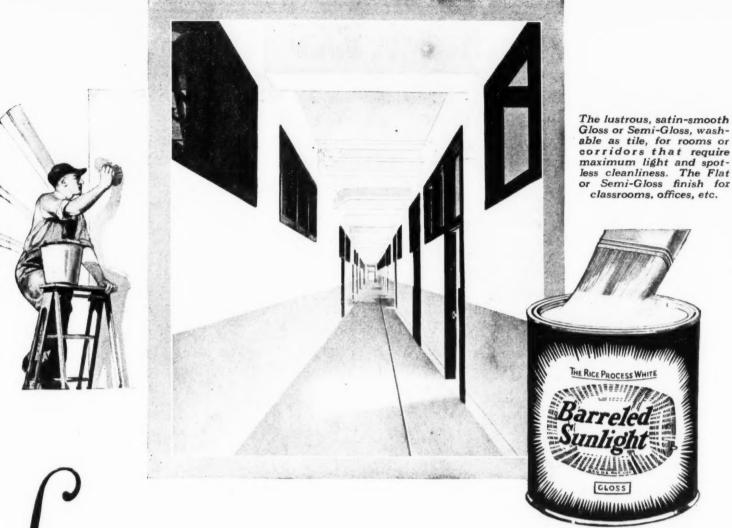
PITTSBURGH Farmers Bank Building

City	Buildings Under Construction	Buildings Proposed
NORTH C	AROLINA	
Albemarle		\$ 125,000
Asheville		1.200,000
Beaufort	\$ 160,000	
Greenville	200,000	200,000
High Point	825,000	100,000
Kingston		
Lenoir		
		150,000
Lexington	125,000	215,000
Oxford	185,000	
Raleigh	650,000	500,000
Raleigh Rocky Mount	350,000	
Spencer	200,000	,
Wadesboro		
NORTH	DAKOTA	
Bismarck	W. W. W. W. W.	\$ 4.000
Grand Forks	\$ 260,000	
Ol	110	
Akron	\$ 600,000	8 300,000
Ashtabula	350,000	6 000,000
Barberton		135,000
Bedford		200,000
Bellevue		450,000
Bowling Green		375.000
Bucyrus	950,000	
Bucyrus	785,000	
Canton	310,000	400,000
Chillicothe	1 070 000 01	
Cincinnati		1.131.576
Cleveland		3,000,000 $1,570,000$
Columbus	and a second second	
Cuyahoga Falls		300,000
Dayton		1.210,000
Dennison	*** *******	270,000
East Cleveland		800,000
Girard	*** *******	80,000
Greenfield	125,000	*******
Lockland		100,000
Mansfield		******
Medina		* *******
Miamisburg	*** ******	160,000
Mingo Junction	575,000	******
Mount vernon		50,000
New Lexington New Philadelphia	240,000	******
New Philadelphia	400,000	*****
North Baltimore		
Norwood		75,000
PortsmouthSt. Bernard	175,000	200,000
St. Bernard	500,000	* * * * * * * *
Salem		50,000
Toledo		2,000,000
Van Wert	120,000	
Woodsfield		16,000
	HOMA	** ***
Antlers		\$1,060,000
Blackwell	\$ 15,000	250,000
Clinton		170,000
Coalgate	110,000	******
Durant	85,000	
Enid	280,000	
Guymon	110,000	
Hominy	170,000	
Idabel	78,500	* * * * * * * *
Idabel	*** *******	60,000
Newkirk	180,000	******
NewkirkOklahoma City	125,000	110,000
Okmulgee	*** *******	275,000
Pawhuska	**** ******	18,000

City	Buildings Under Construction	Buildings Proposed	City	uildings Un Constructio
awnee	350,000		New Castle	100,000
Perry		12.000	Norristown	
Ponea City		250,000	Northampton	
Purcell			Peckville	WO 000
Vinita			Philadelphia	0 240 002
Woodward			Philadelphia	
	EGON		Pittsburgh	
Ashland			Plymouth	
		\$ 75,000		
Forest Grove				
			Sayre	
Hood River	0.00 000	50,000	Scranton	
Klamath		50,000	Shamokin	
McMinnville		25,000	Sharon	
Portland		1.861,000	Tarentum	
Roseburg	175,000		Upper Darby	
Salem		120,000	Warren	40,000
PENNS	YLVANIA		Wayne	. 650,000
Abington	\$ 370,000		Waynesboro	
Allentown	930,000		Wilkes-Barre	
Altoona		8 650,000	Woodlawn	. 100,000
Bangor	200,000		RHODE I	SLAND
Berwick	160,000		Central Falls	.\$ 300,000
Bethlehem	008.000		Cranston	mro ooo
Carlisle	000,000		Johnston	
Darley	200 000		North Providence	
Dormont	408.000		Pawtucket	
Du Bois		50,000	Providence	
Elkins Park		500,000		
			Scituate	
Ellwood City	000 000	1.475.000	Warwick	4 000 000
Erie	1 1 1 1	125,000	Woonsocket	
Glen Lyon		120,000	SOUTH CA	ROLINA
Grindstone		1 000 000	Anderson	.\$ 105,000
Hazleton		1.000,000	Dillon	
Jessup			Greenwood	
Johnstown		250,000	Spartansburg	
Kane			Union	
Meadville		140,000	(Concluded on	
Munhall				



NUMBER OF SCHOOL BUILDING PROJECTS (CONTRACTS LET) IN 1924, 1925, AND 1926.



Lasting cleanliness and better light with this handsome, washable paint on walls and woodwork

ALL the paint qualities that schools want are available in Barreled Sunlight. Made in three different finishes—all easily tinted—this famous product does a handsome, lasting job on any part of the school interior.

Where maximum light and sanitary cleanliness are essential, as in lavatories and kitchens—and also on woodwork throughout the school—Barreled Sunlight Gloss is an established favorite. Its light-reflecting surface is so satinsmooth it washes like tile, and so durable that repeated washings will not wear it away. It gives a finish as handsome as the finest enamel, yet costs less and requires fewer coats.

For places where less than the full gloss is desired, Barreled Sunlight Semi-Gloss offers an unusual combination of good looks and ease of maintenance.

And for the duller effect often preferred on walls of well-lighted rooms, nothing is more suitable than Barreled Sunlight Flat finish. This is washable, but naturally less durable under constant

washing than the Gloss or Semi-Gloss finishes.

Barreled Sunlight "covers" so well

Barreled Sunlight "covers" so well and is so easy to apply with brush or spray, that it does the complete job at the lowest cost per square foot of surface covered.

Barreled Sunlight is sold in 55- and 30-gallon churn-equipped steel drums, and in 5- and 1-gallon cans. Where more than one coat is required, use Barreled Sunlight Undercoat first.

There is a local distributor of Barreled Sunlight in all principal cities.

Use the coupon to obtain further information and a sample panel painted with Barreled Sunlight.

U. S. GUTTA PERCHA PAINT CO.
Factory and Main Offices

44 Dudley Street, Providence, R. I.
New York—350 Madison Avenue
Chicago—659 Washington Blvd.
San Francisco—156 Eddy Street

Distributors in all principal cities. Retailed
by over 7000 dealers

Easy to Tint Barreled Sunlight, an all-oil product, is easy to tint any desired shade by simply adding ordinary colors—in oil, or by using the new Barreled Sunlight Tinting Colors. In quantities of 5 gallons or over, Barreled Sunlight is tinted at the factory, without extra charge. Barreled Sunlight Barreled Sunlight

Barreled Sunlight

panel pa	sen	d v	vi	th	E	38	181	re	le	d													
Gloss [-							09	s	1	1			,	F	18	at	1		1
Name															ė							÷	
Street																							

FLOORS WEAR OUT

owing to the breaking down of the edges of the minute pores or cells.

THE OBVIOUS REMEDY is to support these edges so that they cannot break down.

How the Swan Floor Treatments do this is shown below.

MAGNIFIED UNTREATED SECTION OF AVERAGE CONCRETE FLOOR



Pores and haircracks wide open.

Unsupported edges break down under traffic and cause dust.

Open pores and haircracks collect and retain dirt, moisture and filth.

Impossible to clean thoroughly.

Floor unsanitary.

SAME SECTION TREATED



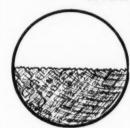
Pores and haircracks filled and covered with tough binding material that improves under traffic.

Supported edges cannot break down.

Dusting and disintegration impossible.

Result: A smooth, hard, nonabsorbing, non-dusting surface. Floor sanitary.

MAGNIFIED UNTREATED SECTION OF AVERAGE WOOD FLOOR



Surface porous—easily splintered and scratched.

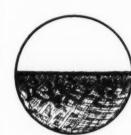
Readily absorbs moisture, oil and grease.

Dirt is ground into the surface under traffic.

Difficult to clean, as scrubbing drives in the dirt.

Washing compounds attack fibres. Floor unsanitary.

SAME SECTION TREATED



Pores filled and fibres bound with a tough binding material that improves under traffic.

Surface is *smooth* and *wear-resisting*. Impervious to oil, grease and moisture.

Dirt and filth cannot penetrate — remain on surface.

Easily cleaned with dry mop or clear water.

Scrubbing or washing powders not necessary.

Floor sanitary.

Swan Treatments for Concrete and Wood.

THE SWAN COMPANY, 101 Tremont St., Boston, Mass.

(Conclu	nded from Page 122) Buildings Under	Buildings
City'	Construction	Proposed
	UTH DAKOTA	a roposed
	\$ 50,000	\$ 175,000
Huron		100,000
Alcoa	TENNESSEE \$ 80,000	
Alcoa Athens		
Chattanooga		\$ 420,000
Cleveland		200,000
Kingsport		135,000
McMinnville		75,000
Springfield	22,500 TEXAS	10,000
	TEXAS 140,000	\$ 20,000
Coleman Corsicana		\$ 20,000
De Leon		
Denison		
Eagle Pass	50,000	
Eastland		150,000
Hearne		150.000
Honey Grove	1 898 000	95,000
Houston		1,200,000 125,000
Longview Lufkin		100,000
McAllen		325,000
Mercedes		
Mercedes Mineral Wells	100,000	
Mount Pleasant		********
Nacogdoches		60,000
Rio Grande	25,000	400,000
San Antonio		400,000
San Benito Stamford		10,000
Taylor		40,000
Terrell	20,000	
Texarkana		200,000
Wichita Falls	344,000	
	UTAH	
American Fork	\$ 825,000	********
Logan	35,000	\$ 75,000
Ogden	100,000	80,000 120,000
Richheld	275,000	275,000
Richfield Salt Lake City	VERMONT	210,000
Rurlington		
Rutland		\$ 350,000
	VIRGINIA	
Alexandria		\$ 40,000
Bristol	\$ 450,000	175 000
Clifton Forge	650,000	$175,000 \\ 125,000$
Danville East Radford		100,000
Lynchburg		40,000
Norfolk	294,859	
Roanoke		1,000,000
Staunton		
Williamsburg Winchester		40.000
Winchester		40,000
V	VASHINGTON	
Anacortes	\$ 300,000	\$ 35,000
Bellingham	10,000	92,000 116,000
Chehalis	100,000	20,000
Hoquiam Olympia	200,000	20,000
Pullman		40,000
Raymond	126,000	

City	Buildings Under Construction	Buildings Proposed
Seattle	. 2,010,000	2.500,000
Walla Walla	. 80,000	
WEST VI	RGINIA	
Beckley		\$ 25,000
Benwood		65,000
Martinsburg		
Morgantown	. 1,000,000	50,000
Moundsville		* * * * * * * *
Richmond		40,000
Weirton	. 60,000	
WISCO	NSIN	
Beloit	.\$ 100,000	\$ 275,000
Cudahy		
Eau Claire		50,000
Fort Atkinson		35,000
Green Bay		1,100,000
Kaukauna		*******
Kenosha		330,000
Madison		
Marshfield		4 400 000
Milwaukee		1,100,000
Mineral Point		350,000
Neenah Racine		1.247,000
Racine		300,000
Waukesha		300,000
Wausau		
Wauwatosa		660,000
West Allis		650,000
Whitewater		170,000
WYOM	IING	
Casper	\$ 40.000	
Rock Springs		
IMPORTANT SCHOOL BOX		THE PAST

IMPORTANT SCHOOL BOND SALES OF THE PAST MONTH
(November to December)
CALIFORNIAAlameda Co., Oakland High School Dist., David E. Martin, Supt., Oak- land, Calif
School Dist., David E. Martin, Supt., Oak- land, Calif. 850,000 CALIFORNIA—San Bernardino Co., Union Junior College Sch. Dist. Miss Ida Collins,
Supt., San Bernardino, Calif
Fuller, Supt. 250,000 FLORIDA—Broward Co., Spec. Tax Sch. Dist. No. 3. J. S. Richards, Supt., Ft. Lauder-
dale, Fla
LOUISIANAOrleans Par., Sch. Dist 1,009,000
MICHIGAN—Dearborn Tp., Sch. Dist. No. 7 200,000 MICHIGAN—Jackson, Union Sch. Dist., E. O.
Marsh, Supt 700,000
MICHIGAN—Royal Oak Tp., Sch. Dist. No. 6. 871,000 NEW JERSEY—Englewood, School, Winton
J. White, Supt
Dr. Wm. O'Shea, Supt 2,500,000

NEW YORK-Oyster Bay, Union Free Sch. Dist, No. 17, B. E. Whittaker, Supt	215,000
NORTH DAKOTA-Cass Co., Farrell Sch. Dist. No. 62, Miss Caroline Evingson, Supt., Fargo, N. D.	200,000
NORTH DAKOTA-Fargo, Sch. Dist., Jas. G. Moore, Supt	200,000
Supt. OHIO—Bexley, Exempted Village Sch. Dist.,	540,000
H. C. Dieterich, Supt PENNSYLVANIA—McKees Rocks, Sch. Dist.,	300,000
T. K. Johnston, Supt PENNSYLVANIA—North Braddock, Sch. Dist. PENNSYLVANIA—Northampton, Sch. Dist.,	300,000 500,000
Clyde S. Frankenfield, Supt	275,000
Fenner. Supt., Elmwood Station, Providence, R. I	225,000
McIntosh, Supt.	250,000

SCHOOL ADMINISTRATION

—Supt. J. M. Gwinn of San Francisco, Calif., has recommended that teacher examinations be made in three parts—(1) written, (2) rating of credentials, and (3) oral. Also that a certificate of health be required. He also recommends that the written examination be in four subjects, namely: United States History; General Science, including Hygiene; English; Methods and Class Management; each of these subjects to have a value of 100 points. That the rating of credentials and the oral examination be made separately by the board of examination, the rating of credentials to have a value of 100 points and the oral examination to have a value of 100 points.

—A reorganization of the school year providing for a fifth term in the summer is recommended by Assistant Superintendent M. G. Hogge of the Chicago school system.

Hogge of the Chicago school system.

—After the voters had granted a higher salary to the teachers of Cincinnati, Ohio, Supt. Randall J. Condon said: "This vote carries with it a deep responsibility—that we may be more worthy of the confidence and good will thus expressed. It calls for better service; for finer preparation; for continued growth; for a higher degree of unselfish devotion; and, as I was certain that the people of Cincinnati would grant this salary increase to their teachers, so I am equally certain that the teachers will prove worthy of the reward that is coming to them."

Announcing

AN INTERESTING SERIES OF ADVERTISEMENTS
IN THE SUBSEQUENT ISSUES OF
THIS PUBLICATION



CLEANLINESS

In this series, comparative conclusions will show the incomparable and universal adaptability of marble for structural and decorative purposes—for both commercial and home usage.

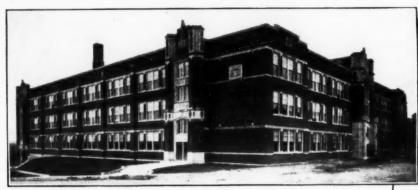


Substantial evidence will be presented, in both illustration and text, of the STRENGTH, BEAUTY, ENDURANCE, SANITATION and ECONOMY of marble.

NATIONAL ASSOCIATION of MARBLE DEALERS

648 ROCKEFELLER BUILDING · CLEVELAND · OHIO

There is No Substitute for Marble



The New Eau Claire High School Building

ANOTHER DUDLEY TRIUMPH

Years of Service Prompts This Letter of Recommendation

Mr. Keller gives you his reasons for insisting on Dudley Keyless Locks for his wonderful new high school building just completed.

If you are still struggling with your locker problem decide right now on positive protection.

Send today for sample Dudley Lock for free examination, also our self-financing plan.

TRIPLE METALS CORPORATION

107 North Wacker Drive

Chicago, Ill. **DEPT.** 16



PAUL G. W. KELLER. Superintendent

EAU CLAIRE PUBLIC SCHOOLS IL G W KELLER, SUPER. EAU CLAIRE, WISCONS

October 22, 1926.

Triple Metal Corporation, 107 North Wacker Drive, Chicago, Ill.

My dear Mr. Full:

Attention Mr. Geo. D. Full,

In making a selection of locks for our built-in and ventilated lockers in our new Senior High School Snyder, the High School principal, and I made a careful the available locks on the market.

at Waukegan Township Secondary Schools, and found them very satisfactory. We wanted to make sure, however, that examines other lock had superseded it in efficiency. After mechanically possible.

We have specified this lock for use with our twelve-hundred lockers, and as a part of our standard equipment. The individual lockers for the Gymnasium students purchase locks from one of our dealers and the principal keeps on file in his office a master list of keys and combinations. This eliminates all handling items connected with proper locker supervision.

rendering a real service in the direction of simpler a more efficient control of student property in schools.

PK/AB

Paul & n. Kier

PERSONAL NEWS OF SUPERINTENDENTS

—Mr. Charles A. Howard, formerly superintendent of schools at Marshfield, Ore., has been elected to the office of State Superintendent of Public Instruction.

Public Instruction.

Mr. Howard has been connected with public education in Oregon for the last nineteen years, having come to the state in 1907 immediately after graduation from Baker University. He has served as teacher, principal, and superintendent, and has done graduate work in school administration at the University of California and at the Stanford University. He holds a master of arts degree given by the University of Oregon. Mr. Howard is the author of a number of articles published in the school magazines of the country.

of the country.

—Mr. Paul Klein, formerly vice-principal of the Memorial Junior High School, San Diego, Calif., has been made principal of the part-time high school. Mr. Eugene Storm succeeds Mr. Klein as vice-principal of the Memorial Junior Wieb School.

High School.

—Ernest R. Smith, formerly principal of the Nottingham junior high school, Syracuse, N. Y., died recently at his home in that city. He was a graduate of Syracuse University and had formerly been a teacher in the Salt Lake City schools. schools

—Dr. Frank P. Graves recently celebrated his fifth anniversary as president of the University of the State of New York and State Commissioner of Education sioner of Education.

—Mr. Fred W. Perkins, formerly chief of the office of motion pictures, of the U. S. Department of Agriculture, resigned on December first to become southern district manager for the Newspaper Film Corporation and the Jam Handy Picture Service of Chicago. Mr. Perkins entered the department in 1917, and in 1920 was placed in charge of the motion picture work.

-Supt. Carroll R. Reed of Bridgeport, Conn., was recently elected as president of the New England Association of School Superintendents. Mr. Reed is a graduate of Harvard University and was formerly superintendent at Rockford, Ill., and Akron, O.

-Mr. B. W. Spear has been elected superintendent of schools of Gulf County, Fla., for a

-Mr. S. R. Bumann, formerly principal of the

—Mr. S. R. Bumann, formerly principal of the Natrona County high school at Casper, Wyo., has been appointed supervisor of employees of the Texas Company's plant at Port Arthur, Tex.

—Mr. Charles O. Haskell, of Harvard, Ill., has been elected superintendent of schools at Bartlesville, Okla. Mr. Haskell has received a life membership in the National Education Association.

—Mr. William C. Sampson of Dubois Paphas

ville, Okla. Mr. Haskell has received a life membership in the National Education Association.

—Mr. William C. Sampson, of Dubois, Pa., has been elected superintendent of schools at Upper Darby, Pa., to succeed the late H. M. Mendenhall.

—Dr. Thomas E. Finegan, Dean John W. Withers, and Supt. H. S. Weet have been appointed to make a survey of the school system at Pittsburgh, Pa.

—Mr. B. F. Holscher of Casey, Illinois, has been elected superintendent of schools of Clark County, Ill. Mr. Holscher had completed his fourth term as superintendent of Casey County.

—Mr. Alvin C. Kibbey, superintendent of schools at Shelbyville, Ind., died on November 10th at a local hospital. Death was due to blood poisoning from a bone abscess. Mr. Kibbey was a graduate of the Indiana Normal College and Chicago University and had completed a postgraduate course at Columbia University. He had filled a number of teaching and supervisory positions throughout the state. He became principal of the Shelbyville high school in 1920, and in 1924 was elected superintendent of schools.

—Mr. Wilford L. Coffey, deputy superintendent.

cipal of the Shelbyville high school in 1920, and in 1924 was elected superintendent of schools.

—Mr. Wilford L. Coffey, deputy superintendent of schools of Michigan, has been appointed acting superintendent in place of Mr. Thomas E. Johnson, who was removed by the Governor. Mr. Coffey has been with the department for eleven years, and for the last five years has been deputy superintendent.

—Mr. Wm. H. Geiger, 47, superintendent of schools at East Liverpool, O., died in the Salem hospital on November 12th. Death was due to typhoid fever.

—Mr. Arthur A. Gaarder of Albert Lea, Minn., has been appointed superintendent of schools, to

—Mr. Arthur A. Gaarder of Albert Lea, Minn., has been appointed superintendent of schools, to succeed Mr. E. E. Hanson.

—Mr. E. T. N. Sadler has been named director of junior high schools at New Bedford, Mass.

—The St. Louis. Mo., board of education rejected Superintendent Maddox's recommendation of Louis R. Rader as principal for the Ben Blewett junior high school. He then nominated H. H. Macker, who was appointed. H. H. Mecker, who was appointed

Albert E. King is the new principal of the
 Lew Wallace junior high school, New York City.
 The new men on the staff of the New York

state department of education are Burton D. Mc-Cormick, supervisor of examinations, Joseph Endres, chief of the crippled children's bureau, and Marion S. Van Lieu, supervisor of home economics.

John H. Bossart is the new supervising principal of the South Orange and Maplewood, N. J., schools.

schools.

—A petition has been filed with the Kentucky state board of education to remove Fonzo Wright, superintendent of the Pike County schools, on the charge that he lacks the necessary scholarship qualifications.

—Mr. Samuel S. Murphy, for more than twenty years superintendent of the schools of Mobile County and City, in Alabama, died at his home on November 4th.

Mr. Murphy was born in Alabama and was a graduate of the State University, being the oldest alumnus of that institution. Since graduation, his time and talents had been given to the Mobile public schools, first as teacher, then as superintendent in Mobile County and City. He superintendent in Mobile County and City. He is survived by his widow, two sons and a

daughter.

—Mr. John I. Hillman, of Jerome, Ida., has become executive secretary of the Idaho Teachers' Association, with headquarters at Boise.

—Miss Maude Sewell, of Summerville, Ga., has been elected superintendent of schools of Chattering Country to 611

of the late W. L. Gamble.

—The patrons of School No. 5, at Shelbyville, Ind., have voted unanimously to name the building the Alvin C. Kibbey School, as a mark of tribute to the late superintendent of schools, A. C. Kibbey C. Kibbey.

Charles W. Taylor succeeds John M. Matzen

—Charles W. Taylor succeeds John M. Matzen as state superintendent of public instruction in Nebraska. Mr. Taylor was reared in Iowa. He is a graduate of the University of Nebraska.

—Mr. Joseph S. Taylor retires as district superintendent of the New York City schools. He was recently tendered a dinner on the occasion of his 70th birthday. Over 1,200 teachers attended. On this occasion, Supt. William J. O'Shea said: "I used to think that it would be (Continued on Page 129)

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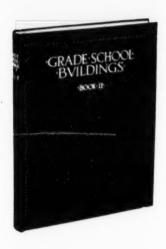
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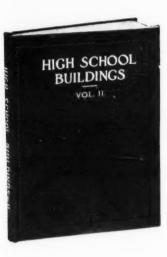
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(Continued from Page 126)
fine to have a superintendent who was not mysterious and cold, but candid and sympathetic; and who did not try to surprise you and catch you at some illicit trick. Even poor teachers have some merits; and it is the special function of supervisors to discover these and foster them. I have seen scores of teachers who seemed doomed to failure, but who picked up courage, acquired skill, and achieved triumphant success. Many of these are now in supervisory positions. They owe their good fortune to patient, conscientious and sympathetic supervisors."

visors."

-W. J. Avery, superintendent of Rapides Parish, was the principal speaker at the dedication of the new Bolton high school at Alexandria, La. The building was designed by Favrot & Livaudais.

dria, La. The building was designed by Favrot & Livaudais.

—The new school at Harrisonville, Ohio, was opened with dedicatory speeches by Principal Clifford J. Rhoades of Pomeroy, Ohio, and C. N. Wagner, county superintendent.

—Mr. R. H. Williams, superintendent of schools at Tilden, Ill., died on October 30th following an operation at a Carbondale hospital. Mr. Williams had completed two years of service and was entering upon his third year's term at the time of his death.

—Mr. C. L. Goodrich, of Allegan, Mich., has been appointed deputy superintendent of public instruction of Michigan, to succeed W. L. Coffey, who has been appointed state superintendent. Mr. Goodrich is a graduate of the University of Michigan and has been with the state education department since July, 1919.

—Mr. George W. Brown, of Newburyport, Mass., for more than fifty years a teacher and principal, was given a testimonial dinner on November 10th, in the Jackman School of which he had been the head for 25 years. Several hundred former pupils and officials of the city attended the evening's testimonial and many letters were read from those who could not be present in person.

The reception was given by the George W.

letters were read from those suppresent in person.

The reception was given by the George W. Brown Association of former pupils, of which Mr. G. A. Ogden is president. Mr. Ernest Foss represented the association in a tribute to Mr. Brown, and Mayor O. H. Nelson was one of the speakers. Other speakers were Mr. Clarence

Washburn, present head of the Jackman School, and Mr. Irvin Johnson of the Newburyport teachers' association.

Mr. Brown was given the title of master-emeritus and was presented with a purse of gold

Mr. Brown was given the title of masteremeritus and was presented with a purse of gold
by former pupils.

—Mr. C. C. Carson, who has directed the
teacher-training and summer sessions at Hanover College for several years, has been made
supervising principal of the city school district
at Miami Beach, Florida.

—The wonderful work of Supt. William J.
O'Shea of New York City, during the world war,
has been recognized with the award of the Legion of Honor by the French government. The
presentation took place at the office of the
French consulate. Mr. O'Shea has also received
the decoration of the Belgian Legion of Honor
in recognition of his services.

—Mr. Guy F. Whaley, formerly superintendent of schools at Pomona, Calif., has resigned
to accept a scholarship in Stanford University.

—Mr. John J. Richeson, formerly superintendent of schools at Decatur, Ill., has accepted the
superintendency at Youngstown, O.

—Mr. H. G. Blount, formerly of Salem, N. H.,
has been elected superintendent of schools in
Southboro, Northboro, and Berlin, Mass.

—Supt. O. A. Wirsig, of Kearney, Nebr., has
been unanimously reelected for a three-year
term. Supt. Wirsig has just completed his sixth
year as head of the Kearney schools.

—Supt. C. S. Fox, of Kingman, Arizona, has

year as head of the Kearney schools.

—Supt. C. S. Fox, of Kingman, Arizona, has been reelected for a term of two years.

NEWS OF SCHOOL OFFICIALS

—Mr. Edwin Hebden has resigned his position as statistician in the Baltimore, Maryland, department of education. He had held various responsible positions during his long term of school service. Upon his retirement, the members of the administrative department, the supervisory and clerical staffs, assembled to honor him, tendered him a luncheon, and presented a purse of gold.

honor him, tendered him a luncheon, and presented a purse of gold.

—Mr. J. H. Claxton has retired as secretary of the board of education at Yonkers, N. Y., after forty years of service.

—Mr. Marcus Aaron has been elected president of the board of education of Pittsburgh, Pa., for the year 1927. Mr. G. W. Gerwig was reelected secretary of the board at the same salary.

The committee on buildings of the Milwaukee board of school directors has recommended that an assistant architect be employed, whose that an assistant architect be employed, whose duties it will be to take charge of the drafting room and specification work and to perform such other duties as may be assigned to him. The position carries a salary of \$4,500 per annum. The appointment of the new official is intended to facilitate the making of plans and specifications for new buildings and additions and to effect a better organization in the construction division. division.

effect a better organization in the construction division.

—Dr. E. S. Mowry has resigned as a member of the Mexico, New York, board of education after a service of sixteen years. Dr. Mowry had acted as president of the board for the last six years. He was responsible for bringing many improvements into the schools and he directed the agitation for a new school which resulted in the appropriation of \$175,000 for the structure.

—Mr. John B. Hinchman has been appointed by the city council of Greenfield, Ind., as treasurer of the board of education. He succeeds Mr. Lawrence Wood, who had served for six years.

—At Pittsburgh, Pa., district custodians have been appointed in four districts to supervise the school buildings in these districts. The custodians are Mr. Robert Dunn, Mr. John E. Spore, Mr. Joseph Marks, and Mr. Wm. A. Thompson. Mr. E. C. Kuhns, formerly chief clerk of the board of education, has been made cost clerk.

—Mrs. Sadie D. Anderson, Redondo Beach, Calif., has succeeded Ernest Heath as a member of the elementary school board.

—Dr. Thomas Meriwether has been elected to succeed Mr. S. M. Bryant as a member of the board of education of Gulf County, Florida.

—Dr. Otto L. Schmidt and Mr. Charles J. Vonicka have been appointed as members of the

—Dr. Otto L. Schmidt and Mr. Charles J. Vopicka have been appointed as members of the board of education at Chicago.

—Mr. Stephen M. Wagner has been elected president of the board of education at St. Louis, Mo., succeeding Mr. Fahrenkrog.

-Mr. R. M. Milligan of St. Louis, Mo., has been reelected as commissioner of school build-ings, for a period of four years.

—Mr. H. L. Horner, who has completed a five-year term as clerk of the Mohave County, Ari-zona, Union High School, has been reelected for

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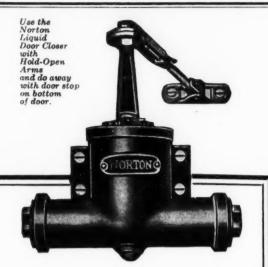
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—A gift of \$100,000 has been presented to Teachers College, New York City, by Mrs. R. M. Hoe, in memory of her husband, Richard M. Hoe. Mr. Hoe was a member of the board of trustees from 1914 to 1925.

—Mr. Valentine E. Macy has been elected a member of the board of trustees of Teachers College, New York City.

—Since the opening of the school year, a project for the promotion of community activities has been carried out in the new Thomas F. Bayard School at Wilmington, Del. The work is in charge of Mr. H. B. Jacobs, who works in cooperation with the principal in promoting a wider use of the school and grounds outside of school bours. school hours.

Under the plan, various community been developed and the building and grounds are used almost continuously. The project, which has proven entirely successful, is financed by the Service Citizens of Delaware.

-W. M. Wilson, superintendent of the Pineville schools, was elected president of the Upper Cumberland educational association of Kentucky.

The California State Federation of Teachers elected the following officers: President, Paul J. Mohr, San Francisco; vice-president, Olive Wilson, Vallejo; Miss Ida Bernard, Fresno, second vice-president; Miss Celia Dahringer, Sacramento, third vice-president; C. W. Peck, Vallejo, fourth vice-president; Miss S. A. Corpstein, San Francisco, fifth vice-president; S. G. McLean, Oakland, sixth vice-president; R. W. Everett, Sacramento, secretary; A. V. Wilde, Sacramento, treasurer; Miss Helen Williams and F. A. Wright, Vallejo; O. B. Williams, Mrs. T. H. Thomas and Misses H. Merrill and Nell Flander, Sacramento; George Learned and H. P. Dale, San Francisco, and Miss Alice Smith, Fresno. Smith, Fresno.

—The Elementary Principals' Association of California reelected the following officers: W. T. Eich, Roseville, president; J. J. Finney, Suisun, vice-president; Miss Emma Von Hatten, Sacramento, secretary; and Miss Henriette Huntington, Sacramento, treasurer.

—Supt. G. E. Brown, of Greeley, Colo., was elected president of the Colorado Education Association. Supt. John C. Casey was chosen to head the eastern division of the association.

—Supt. J. J. Kelley, of Wise County, Virginia, was elected president of the State Education Association, at its twentieth annual meeting, in Roanoke, Va. He succeeds Mr. Fred M. Alexander, of Newport News, Va., and will serve that the succeeds of the very state of the succeeds of the s one term of two years.

—Supt. J. G. Jeter, of Covington, Va., was elected president of the Superintendents' Association of Virginia, at its annual meeting held in Roanoke, Va., Nov. 24.

—The officers-elect of the Illinois State School Board Association are: President, L. J. Thiele, Glen Ellyn; vice-president, M. H. Wright, Lake Bluff; secretary-treasurer, Mrs. G. A. Stover, Oak Park.

—The new members on the Omaha, Nebr., board of education are James E. Fitzgerald, Edward R. Burke, Edward S. Miller, H. B. Berquist, C. W. Mason, Horace M. Higgins, and John U. Loomis. The hold over members are C. V. Warfield, Dr. J. H. Wallace, Mrs. Harlean Fetters, Mrs. Hazel Dunbar, and Mrs. Alice A. Holtman Holtman.

--William C. Rastetter succeeds Bryon H. Somers as a member of the Terre Haute board of education.

-James R. Mills was chosen a member of the Cleveland, Ohio, board of education. Mr. Mills is a district manager of the Carnegie Steel

—Miss Elizabeth Smith, a teacher in public school No. 20, New York City, has retired after fifty years of service. She was given a farewell reception and presented with a beautiful diamond studded watch and pin.

—Mr. Joseph W. Crowe and Mr. Virgil W. Samms have been elected members of the board of education at Boise, Ida. Mr. Crowe is manager of the Boise division of the Idaho Power Company, and Mr. Samms is district manager of the Mutual Benefit Life Insurance Company.

-At a recent election held at Summerville, Georgia, Mr. B. W. Farrar and Mr. B. H. Ed-

mondson were reelected members for three-vear terms. Mr. Edmondson has been secretary-treasurer of the board for eighteen years, and during his term of office, the schools have never been in debt except for bond issues.

-Mr. Orville Eichenberg has retired as super Orange County, N. Y., after completing 54 years in the educational field as teacher, principal, and superintendent. He was a principal for 25 years prior to his election as a general dark. prior to his election as superintendent.

-Mr. Judson S. Wright has retired as district superintendent of schools of Chautauqua County, after completing 36 years of service to the state.

—Mr. James M. Brawner, a former member of the board of education of Griffin, Ga., has made a gift of \$50,000 to the high school. The gift takes the form of a trust fund, the proceeds of which are to be used in supplementing the salaries of the high school teachers.

—Muskegon, Mich. The school board recently refused to permit Mr. G. Sherwood Eddy to speak to students of the senior high school. The action was taken because it was believed Mr. Eddy is a propagandist for Soviet Russia.

SCHOOLHOUSE DEDICATIONS

The new James A. Garfield high school at Akron, Ohio, was opened with a dedicatory speech by James R. Garfield, son of the martyred president. Other speakers were R. J. Keifer, superintendent of schools at Niles, O.; Wilson Hawkins, superintendent of schools at Canton, and George E. McCord, superintendent of the and George E. Akron schools. E. McCord, superintendent of the

—The speakers at the opening of the new Brightwood School, Washington, D. C., were Engineer-Commissioner J. Franklin Bell and Superintendent Frank W. Ballou.

Superintendent Frank W. Ballou.

—The new Kenwick school at Lexington, Ky., was formally opened by O. J. Jones, assistant state superintendent. The other speaker was Dr. L. B. McMullen of the University of Kentucky.

—C. W. Plessinger, county superintendent, made the dedicatory speech at the corner stone laying of the new \$250,000 school at Belmont, near Dayton, Ohio.

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AMONG BOARDS OF EDUCATION

—Minneapolis, Minn. Under new rules re-cently adopted, traffic signs will be placed in the streets one-half hour before the opening of school in the morning and removed fifteen minthe streets one-half hour before the opening of school in the morning and removed fifteen minutes after the opening of school. They will be placed in the streets five minutes before the close of school at noon and will remain until ten minutes after the opening of the afternoon session; in the afternoon they will be placed five minutes before the close of school and removed fifteen minutes after the close of sessions.

—Pittsburgh, Pa. The school board has reserved from the unappropriated balance of the general fund the sum of \$550,000 for the erection of the administration building.

general fund the sum of \$550,000 for the erection of the administration building.

—The breakage of window glass in the school buildings cost the Chicago board of education \$86,000 a year ago. For the first seven months of the present year the damage has been diminished to less than one-third or \$23,000. The breakage was heaviest in the congested foreign districts, where the children have little respect for property rights.

In the campaign the superintendent called

In the campaign the superintendent called particular attention to the tremendous waste, stressed the importance of practical civics, and the emphasis caused greater stress upon these matters by the teachers. Discussions were held and children were encouraged to take more responsibility.

responsibility.

—Los Angeles, Calif. Thirteen girl students of the high school have been suspended from classes until the opening of the second semester, for alleged affiliation with sororities in violation of the state law. It is intimated that the board will be asked to permit the girls to return to school with the agreement that they refrain from further participation in the sororities.

The board of education has intimated that it will stand pat in regard to existence of fraternities and sororities in the high schools. All proven violators will be dismissed from school.

—St. Joseph, Mich. Supt. S. C. Mitchell has disapproved a proposal to appoint school janitors as traffic officers before and after school hours. The superintendent holds that the janitors are too old for traffic directors and favors school boy patrols.

school boy patrols.

—Villa Grove, Ill. The school board has pro-hibited football playing during the school year

1927. The action was taken because of the many injuries to players during the opening

—The 1927 recreation fund recommended by the city commission has been reduced from \$16,480 to \$10,480. The board eliminated an item of \$400 for repair of playground equipment, on the ground that the school district pays for repair on its equipment, and the city should do the same.

—Eight children from a single family constitute the entire enrollment of Diamond A school, ten miles west of Jarbridge, Nev. The -The 1927 recreation fund recommended by

school, ten miles west of Jarbridge, Nev. The father of the children owns a ranch upon which father of the children owns a ranch upon which
the school is located. The school is well
equipped. Hot and cold water, electric lights,
a typewriter, a victrola, swings, slides and boxing gloves are provided. The teacher receives
\$125 a month for a nine months' term.

—After forty years of service, John H. Claxton retired from the secretarial office of the
Yonkers, N. Y., board of education.

Yonkers, N. Y., board of education.

—At the school board convention held at Stevens Point, Wis., Miss Marion Bannach, county superintendent, cautioned rural school trustees against unwise textbook purchases. Before anything is done in the matter of purchasing textbooks, school boards should get advice and recommendation from the county superintendent's office, she said, rather than to purchase promiscuously from salesmen who sometimes load down the school board with textbooks not suitable for their uses. This is not a general practice, but where done is due to high pressure salesmanship and sometimes misrepre-

a general practice, but where done is due to high pressure salesmanship and sometimes misrepresentation, Miss Bannach declared.

"It would probably be a good thing for school boards to attend the teachers' convention. They would get some ideas and be disillusioned of any fixed notions that may be due to their prejudices or their outside viewpoint," said Topeka. Kansas, Capital. "It is a good rule for school boards to go slowly in interferences with the actual internal operation of the schools, and to be guided, as most of them probably are in professional matters by the heads of the schools who attend the annual meetings and whose ideas are apt to be nearer right on technical school are apt to be nearer right on technical school questions. The larger the independence of the teaching profession the greater the progress the schools are likely to make, or the more likely

they are to keep up with the most constructive educational ideas."

—Atlanta, Ga. The school board has rescinded a resolution which proposed to lengthen the school day by one hour.

—Boston, Mass. Management of the finances of the school board wholly by that body is a legal possibility in the opinion of Business Manager Alexander M. Sullivan. The report and recommendations of the business manager are based on findings of the Massachusetts Supreme Court. The board has referred the matter to the law department of the city which has requested an opinion from the corporation has requested an opinion from the corporation

-Chicago, Ill. Mayor Dever has recommended to the city council the appointment of Charles J. Vopicka, Dr. Otto L. Schmidt, and Walter J. Raymer as members of the school board. The new members take the places of Mr. E. B. Ellicott, late president of the board, Mr. J. Lewis Coath, and Dr. Victor Schiller. Coath, and Dr. Victor Schiller.

—At the New Bedford, Mass., school board election the question of regular attendance at meetings has been raised on members who seek reelection. The best record is made by Mrs. John L. Burton, who missed only two meetings in two years. One member missed 24 meetings, two years. another 25.

—William C. Rostetter and Gottlieb H. Heine were appointed members of the school board at Fort Wayne, Ind.

Port Wayne, Ind.

—Petitions seeking an election for the recall of the Dallas, Texas, board of education is being circulated by the Public School Protective Association of that city. Something over 7,000 signatures will be necessary before an election can be called. A compulsory vaccination order has caused the trouble. President Fred T. Mosely of the association said: "In the event the recall election carries and a new board is elected we will have a new superintendent of elected we will have a new superintendent, a new assistant superintendent and a new secre-tary of the board of education. I have no doubt that the people of Dallas will vote by a large majority to depose the board, which is composed of Boude Storey, president; Alex W. Spence, Mrs. H. L. Peoples, W. C. Everett, Dr. David W. Carter, Jr., E. N. Noyes, and Mrs. W. P. Zumwalt."

ALABAMA

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McKinley School, Liberty Township Geo, W. Balch School St. Stevens School Polk Township Sch Waterloo St. Stevens School Carstens School Waterloo

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Los Angeles
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Hammel Street
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Twentieth Street
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Cole School, Oakls
Hawthorne School,
Maxwell Park Sch
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KICO Grade

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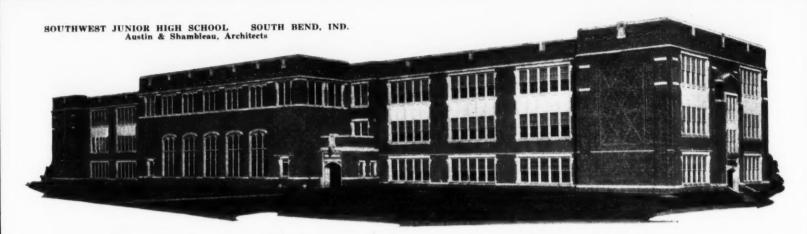
School executives, architects, engineers and heating contractors should consider the four heating success factors in each Webster System of Steam Heating-Service . . . Experience . . . Webster System Equipment . . . Webster Engineering Methods.

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Permanent Plumbing Protects Public Property

This school is permanently protected from the ravages of laboratory acid waste by Duriron drainage

Duriron is essential for carrying corrosives from the school laboratories because:

- (a) It is no more affected by acids than other materials are by pure water.
- (b) Its first cost is final; it will last with the building without any replacements.
- (c) Sanitation and healthful conditions prevail where Duriron is installed.
- (d) Duriron permits the location of the laboratory anywhere in the school building as it protects the walls and ceilings from disfigurement and damage caused by leaking acids.
- (e) Duriron is installed the same and as easily as cast iron soil pipe. It is a solid cast metal alloy, requiring no protective coating.

For these reasons, more than a thousand schools, old and new, from Maine to California, are equipped with Duriron acid-proof drain pipe.

Duriron is produced only by The DURIRON COMPANY DAYTON OF ID

WASHINGTON CORRESPONDENCE A. C. Monahan, Formerly U. S. Bureau of Education

A Sabbatical Year for Public School Teachers A sabbatical year for all public school teachers desiring time for professional improvement is under consideration by the District of Columbia Board of Education. The plan is similar to that in existence at most colleges and universities and in a considerable number of city school systems.

The plan in Washington would grant each teacher upon request a full year for travel, study, or research work after each six full years study, or research work after each six full years of service. It is proposed to pay the teacher the difference between her salary and that of the substitute appointed to take her place. One difficulty is that this amount, however, is not sufficient. The difference under the Washington salary schedule for the teacher taking her first sabbatical year would be \$700. Few teachers have the necessary private income to increase this to a sum on which they could live for the year and pay the necessary expenses of either year and pay the necessary expenses of either travel or study.

Among the cities which have inaugurated the Among the cities which have inaugurated the sabbatical year plan, the pay during the absent year is as a rule larger. One-half of the actual pay appears to be the usual amount. However, the "sabbatical" year granted is not always the seventh year. In Newton and Boston, Mass., New Rochelle and Rochester, N. Y., it is the eighth year; in Cambridge, Mass., and Newark, N. J., it is the eleventh year. Richmond, Virginia, grants a four and one-half months' absence after three years of service on application by the teacher. by the teacher.

Many school systems granting what may be regarded as sabbatical years do not use that term. Boston, for instance, has a regulation that teachers may be granted absence "for a period not exceeding one year" "for study, travel, or rest." Teachers become eligible for a year's leave for study and travel after seven years of service, and for rest after twenty years. They may not be granted for study and travel more than one year in any eight consecutive years, and for rest more than one year in 21 consecutive years. While on leave they receive one-half their usual salary.

The number of teachers who may be on sab-batical year absence in the various cities where batical year absence in the various cities where such leaves are given, is usually limited in each city, perference being given to the order in which applications are received, length of service, nature of service, efficiency, and their general record. It is a usual condition that the particular study or travel must have the approval of the school board, and also that the teacher granted leave must sign an agreement to remain in the service after return for a to remain in the service after return for a stated period.

The regulations of the Rochester, N. Y., board

The regulations of the Rochester, N. Y., board may be regarded as typical and for that reason are quoted in part below:

"Any teacher, or principal, who shall have served the city of Rochester for seven years may, on recommendation of the superintendent and with the approval of the board of education, be granted leave of absence for study or travel on the following conditions:

First. Applicants must state the definite purpose for which such leave of absence is desired.

Second. Reports must be made to the superintendent during such absence, and if such reports are unsatisfactory such leave may be terminated by the board at any time.

Third. Applicants must file with the board a written agreement to remain in the service of the

at any time.

Third. Applicants must file with the board a
written agreement to remain in the service of the
board for three years after the expiration of such
leave * * * * * *

duration. It sheater, nor shall it exceed one year in eight consecutive years.

Fifth. Salary during such leave shall be one-half the applicant's regular salary, but in no event shall it exceed \$1,000.

Sixth. Not more than 15 applications for leave of absence shall be granted to take effect during the school year. In case the number of applications shall exceed 15, selection shall be made in accordance with the following principles:

(a) Length of service, preference being given to those longest in the service.

(b) Distribution by schools, care being taken that the number from any one school shall not be comparatively excessive.

(c) Nature of service, provision being made that the benefits of such leave of absence shall be distributed as fairly as possible among all grade, high school, and supervisory positions.

Preliminary Program of the Dallas Meeting of

Preliminary Program of the Dallas Meeting of the Department of Superintendence The Secretary of the Department of Superintendence has the preliminary program well under way. Certain features are now announced.

The Convention Headquarters will be located in the center of the Exhibit Hall which is imme-

diately adjacent to the Fair Park Auditorium where the general sessions will be held. In the Exhibit Hall, in addition to the Headquarters, will be a comfortable lounging room, restaurant, and rest room.

In the Exhibit Hall there will be Educational Exhibits under the direction of Mr. W. H. Vogel of Cincinnati. A special room has been provided for the demonstration of stereopticon and moving picture machines for the showing of Visual Education material. A total of 178 companying the showing of the state of the showing o mercial exhibits of all types of school supplies and equipment has been arranged.

The Convention opens on Sunday, February 27th, in the Auditorium of the Southern Methodist University.

The Department of Elementary School Principals will meet on Monday, Tuesday, and Wednesday, at the Fair Park Auditorium.

The Department of Vocational Education will hold three sessions in the Auditorium of the Bryan Technical High School on Tuesday and Wednesday.
The National Council of Kindergarten Super-

visors and Training Teachers will meet Tuesday and Wednesday in joint meetings with the National Council on Primary Education.

The National Society for the Study of Education will meet Saturday, February 26th, and Tuesday, March 1st.

Tuesday, March 1st.
The National Society of College Teachers of

The National Society of College Teachers of Education will hold its session on Monday and Tuesday, February 28th and March 1st.

The National Council of Education will hold its meeting at Dallas during the Convention week. The principal speakers at these meetings will be Charles H. Judd, of the University of Chicago, Jesse H. Newlon of Denver, Colo., S. A. Courtis of the University of Michigan, and D. E. Weglein of Baltimore.

Weglein of Baltimore. Educational Exhibits at Department of Super-

Educational Exhibits at Department of Superintendence Meeting

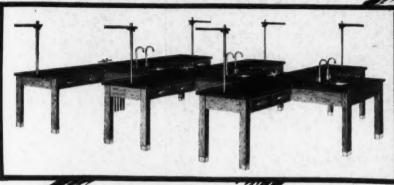
An unusual feature at the annual meeting of
the Department of Superintendence of the
National Education Association, to be held in
Dallas in February, is the special Educational
Exhibit made possible because of the large
amount of space available in the Exhibit Hall.
This is a thing entirely distinct and separate
from the commercial exhibit which has been a
(Concluded on Page 136)

for the Teaching of Science in Your Schools

These Lincoln Desks—for Chemistry and Physics—have attracted international attention in educational circles, because of their outstanding advantages.

These desks are used in the Lincoln School of Teachers College, New York City, New York, and in other prominent schools, where the highest educational standards are desired.





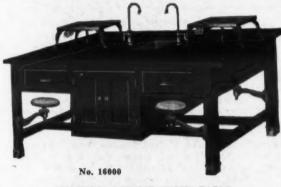
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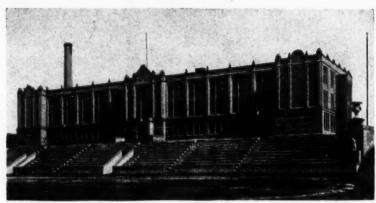
Laboratory Furniture

Williams'ReversibleWindowFixtures



Williams Reversible Windows Easily Cleaned

complete reversibility of the sash per-mits window cleaning from inside of the room with ease and absolute safety. The illustration shows the ease with which Williams Reversible Window Fixtures can be cleaned. All work is done entirely from the inside—a safety factor of no small importor of no small impor-



Lehman School, Canton, Ohio. Thayer & Johnson, Architects, Cleveland, Ohio, and New Castle, Pa.

ESPECIALLY ADAPTED FOR SCHOOLS

Williams Reversible Window Fixtures are especially adapted to school-house construction. The demand for a schoolhouse window that lends itself

house construction. The demand for a schoolhouse window that lends itself to good appearance, that is easily operated, that is reversible for cleaning and is conservative in cost, is satisfied by "Williams."

Architecturally, the lines of the double hung windows are retained and no special frame or sash construction is necessary. Cost is conservative—the elimination of weights, cords and pulleys, the substitution of a plank frame for a box frame, bring the cost to that of a good double hung window.

Williams Reversible Window Equipment is installed only by factory trained mechanics, assuring efficient workmanship and proper operation of equipment.

LET US SEND YOU FURTHER PARTICULARS.

Our policy of fitting and installing the sash and applying our fixtures, insures proper operation of the equipment. Following this policy for almost twenty years has resulted in many cities equipping all of their schools with "Williams" equipment exclusively.



Provides Ideal Window Ventilating Facilities

By merely tilting either or both sash an ideal over head ventilation is obtained and children sitting near the open window are not subjected to draft. The sash are placed in a plank frame and being nonsliding a more weather-tight window is obtained.

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THE WILLIAMS PIVOT SASH CO.

Write for list of installations near you.

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prominent feature at these gatherings for many

years.

The aim of the special committee in charge of the Exhibit has been to secure exhibits illustrating art in life along the lines of general welfare, common defense, happiness, liberty, and culture. A large number of posters are being prepared by school children throughout the country. Also special designs and plans have been prepared by others concerned with school designing, including not only interior decoration but also building elevations and playground and schoolyard landscaping.

Among some of the educational organizations which will have exhibits as a part of this plan, is the Junior Red Cross, which will illustrate work in this country and in foreign countries. The Progressive Education Association and the Research Station of Character Education of the Research Station of Character Education of the University of Iowa, have exhibits entered. Considerable space is to be devoted to exhibits illustrating activities in Printing in connection with schools. Considerable space also will be devoted to exhibits in visual education. The U. S. Bureau of Education is preparing an exhibit for this section, as is also the National Education Association. This Educational Exhibit is under the direction of Mr. W. H. Vogel of Cincinnati.

Beautiful School Grounds

Agitation over the untidiness of public school grounds has resulted in special activity on the part of the District School Board in putting them in better condition. Out of the complaints for better drainage and surfacing for play purposes has grown a demand for steps toward beautifying the grounds with shrubbery and flowerbeds placed where they will not interfere with the playground.

The result of the agitation has been a series The result of the agitation has been a series of conferences. From them comes the announcement that the Chairman of the School Board has asked Congress to authorize the employment of a supervisor of school grounds. This official would be responsible, under the Superintendent of Schools, for the landscaping and conditioning of school grounds. An appropriation of \$25,000 will be needed to begin the work at the new Health School and others.

No Engraved Invitations for High School Graduations No engraved invitations are to be furnished

the graduates of Washington high schools for graduating exercises in the future, according to a decision of the board of education at a recent meeting. It has been the practice for the board of education to have engraved invitations pre-pared and furnished free up to a certain number. In the future the board will furnish printed

Printed programs for graduating exercises will no longer be furnished by the board. Each high school has a printing shop and will be expected to print its own programs.

Health Department of Washington Schools

Plans for a closer and better coordinated con-trol of the health problem among school children were formulated at a recent conference of school officials in charge of health matters and representatives of the Washington Tuberculosis Association, held under the auspices of the associa-

Two points of agreement were reached. One is that all pupils found to be ten per cent under weight for age and height should be barred from strenuous athletics, as was done last year. The other is that children known to be ten per cent

other is that children known to be ten per cent underweight shall be recommended to the school medical inspector for examination and advice.

The Child Health Education Department of the Tuberculosis Association, in its cooperative work with the public schools, already has helped to organize and conduct eleven health habit classes and seventeen weight-study classes in the public schools, besides the weighing and measuring of all pupils in 30 white and 35 colmeasuring of all pupils in 30 white and 35 colored schools.

The department also is conducting weight-height-age surveys in four Catholic parochial schools, and two special health classes, one at the Washington City Orphanage, and the other at the bureau of health education. Its workers also conduct three diagnostic clinics, two for white and one for colored children.

Board of Education Refuses Demand to Oust High School Teacher

A public school teacher is entitled to his own opinions on matters of religious, political, and economic issues, so long as he does not voice

them in improper places or arouse improper action by them. This is the policy of the Dis-trict of Columbia board of education as evidenced by its recent action, answering a demand for the ousting of a high school teacher as a socialist.

The actual charge was that the high school instructor wrote a definition of socialism which won a prize in a nation-wide contest conducted by a well-known magazine. The definition was published.

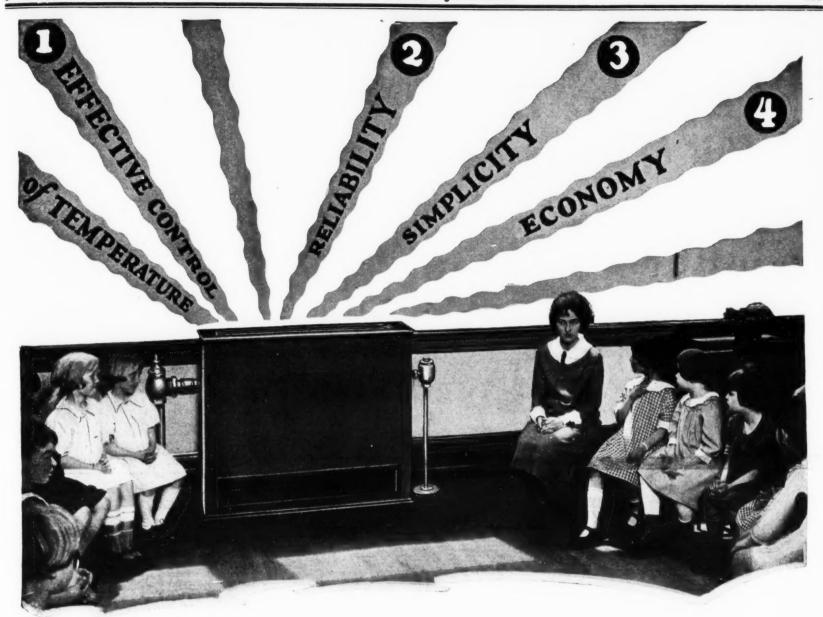
published.
A retired United States Army Officer, living in the District, asked that the instructor be ousted. In his petition to the board he stated that it did not matter whether or not the instructor had actually taught in his classes the ideas expressed in his published definition of socialism, but that the ideas showed a mind so warned as to be unsefer. The heard's answer is warped as to be unsafe. The board's answer is the statement above, given after a thorough in-

The discussion of the matter raised considerable public interest outside as well as inside the District. A letter of protest against the proposal to oust the teacher was received from the Governor of Arizona.

TEACHERS' MARKS

-Supt. Jesse L. Ward of Bucyrus, Ohio, has —Supt. Jesse L. Ward of Bucyrus, Ohio, has presented the findings of a study of teachers' marks in high school for the month of November. In connection with the report, Mr. Ward points out that pupils, as a rule, are too young to realize there is a time for work and a time for play and that anything that is allowed to interfere with study is bound to result in poor grades. It results in a lack of discipline which is the chief point of criticism of the schools today. Mr. Ward insists that there are too many failures in some subjects, and at the same

is the chief point of criticism of the schools today. Mr. Ward insists that there are too many failures in some subjects, and at the same time points out that an A grade is not always the peak of perfection in pupil performance. The findings show that there have been a total of 818 subject failures in the school since the beginning of the year, or an average of one for each high school student. Normally the U, or unsatisfactory grade, is assigned to approximately seven per cent of the students. The largest number of unsatisfactory grades are found in mathematics, history, Latin and English classes.



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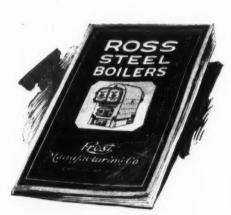
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each in its period of the best that engineering skill could produce based upon the superior performance of its predeces-

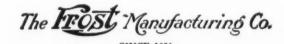
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Ross Boilers are unique in design but behind each feature there is a practical reason, the results from which are quite evident to the engineer who will check his experience with the statements to be found in our catalog.

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Quick, noiseless heat for Schools of every size is provided by the Dunham Low Pressure Steam Heating Systems. Every room is properly warmed because every radiator, without regard to its location, is efficient, its heat supply easily controlled.

Three major advantages of steam are:

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Second, it is wonderfully flexible, the heat supply being easily controlled (at the radiator). More heat, or less heat, are instantly available. Unlike hot water, there is no large body of water to be heated before heat circulation becomes effective, nor to be cooled off before room temperatures can be lowered.

Third, it is economical in fuel. The flexibility and closeness of control save fuel where less flexible systems waste it.

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Dunham Heating Systems are remarkably simple in operation, making them unusually attractive to janitors, who find these systems most satisfactory due to this simplicity of operation as well as their quick heat and ease of control.

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Over sixty branch and local sales offices in the United States and Canada bring Dunham Heating Service as close to you as your telephone. Consult your telephone directory for the address of our office in your city.

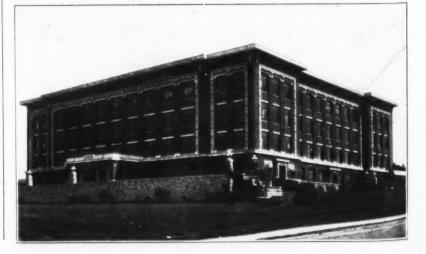
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This nameptate identifies a genuine Dunham Thermostatic Raciator Trap. It is placed on the Dunham Trap for your protection and it is your assurance of the Dependability and Satisfaction which characterize Dunham Heating Service.

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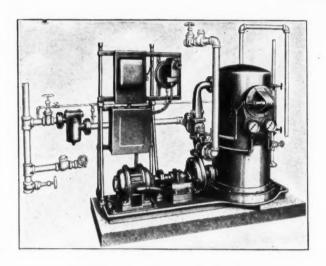
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AND BOILER FEED

Supplied in Standard Units of Seven Capacities PUMPS

V1 Unit equipped for automatic vacuum control, showing piping connections. Suction strainer and check valve at inlet of pump are furnished with unit, as well as companion flanges, bolts and gaskets.





They Give Years of Trouble-free Service

A Young Pump can be depended upon to deliver constant, uninterrupted service year after year with minimum attention.

The only attention it requires is an occasional oiling of the motor and pump bearings. The stuffing box needs packing only once in two or three years. In fact the ordinary fireman can easily take care of a Young Pump.

It is simple—and rugged. Just one moving element performs these two important functions: It creates a powerful suction on the return lines of the system. At the same time it maintains a standard discharge pressure of 20 pounds at the pump for discharge to boiler.

The motor is generously over-size to insure easy operation under the heaviest possible condensation load. Each Young Pump is capable of discharging water four times faster than its normal rated capacity.

Each Young Pump is completely assembled at the factory and given an actual working test insuring correctness of every part and alignment of every bearing.

Young Pump Company

DUNHAM BUILDING

450 East Ohio Street, Chicago Factory: Michigan City, Indiana

ROSEWOOD ELEMENTARY SCHOOL, LOS ANGELES

(Concluded from Page 82)

Each classroom has at the rear end—in this case the east end—a closet $4\frac{1}{2}$ feet wide, with hooks for the pupils' clothing. One end of the closet is partitioned off and furnished with shelves, door and lock, for the storing of books and supplies. The teacher is expected to keep here enough chalk, paper and other similar material to last a month, replenishing her supply from the main storeroom.

Visual education is largely used in the Los Angeles schools, yet the driving of tacks, nails, and screws into window or door casings or blackboard mouldings to support charts, maps, or pictures is forbidden. In order to provide a place for such things, a shallow, two-inch groove is made in the moulding above the blackboard and a strip of linoleum glued therein, where tacks and screws may be driven.

All new buildings provide ample space for administrative offices. In the Rosewood school 1½ units are devoted to this purpose. These rooms are located on the west side of the building, in the middle of the classroom section. There is a large principal's office and a storeroom of similar size on either side of the secretary's office, which is open on the side next to the main central corridor.

In the secretary's office there is a counter set well back from the hallway and running crosswise with the room. Here new pupils are registered and visitors received. Numerous drawers underneath the counter provide space for storing secretarial supplies. The large paper cutter, a dangerous instrument in the hands of children, is kept upon a table beside the secretary's desk.

The principal's office is provided with a private entrance from the corridor, but at present

this passageway is blocked with a candy booth.

The large storeroom has a counter opening into the corridor, with sliding door above, where supplies are given out. In addition to books and classroom material, bottled milk and orange juice are stored here for the pupils.

The children's toilet rooms are located at the opposite ends of the classroom section of the building, on the side far from the street. They may be reached either from the interior or exterior of the building, the floors being sunk to a level with the playground outside. This lowering of the toilet room floor gives the former an extra high ceiling, 15 feet, which—together with their ample width—provides ample air space.

Ventilation is effected by means of an air pump, which draws the air out of the room through small gratings above each seat and into the narrow service closet behind, from which it is forced outside through a large sheet iron pipe. The service closet is entered through a narrow hallway door, which is kept locked and opened only when a plumber is making repairs.

Floors of the toilet rooms are of white, vitreous ceramic tile. Seat partitions are made of Alaskan marble, the principal variety used in the schools. In the boys' toilet a seven-inch slab of marble is fastened on top of the partitions, next to the wall, to hold them in place. In the girls' toilet this slab is placed in a vertical position above the partitions, in front, and each seat closet provided with a door. Water pressure is sufficiently great to permit the use of valve toilets.

The boiler room is located between the two main toilet rooms, in a basement, especially constructed for that purpose. Where practical, the electrical and all other mechanical appliances are placed in this room, so they can be controlled by one person. At the Rosewood

school, however, the auditorium ventilator is located in a small separate closet and electrically operated.

Steam is used for heating purposes and crude oil for fuel. The latter is stored in an underground tank outside the furnace room and is reached by a pipe running underneath the building and extending to the street, where the oil is received from tank wagons. An atomizer attached to the furnace vaporizes the oil, making it easy to burn.

The large incinerator adjoins the building on the west and is a very commodious affair, somewhat resembling a bake oven in appearance, with tiled roof and smoke pipe leading into the furnace stack.

Three double doors lead from the entrance hallway into the auditorium, making it possible to empty the latter very quickly in case of fire or panic. There is also a private entrance to the stage for speakers.

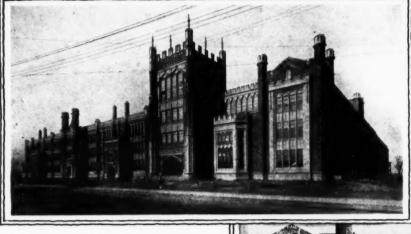
The stage has considerable depth and is provided with two dressing rooms, one in each wing. The curtain, which has not yet been installed, will be the kind that separates in the middle and is drawn back to either side. The proscenium arch is decorated with two pleated rope columns. A different decorative scheme is used in each school auditorium in the city.

The auditorium is seated with folding chairs, which may be stored in a commodious closet in the rear, when it is desired to clear the floor for other purposes.

The moving picture projection room is double the usual size and is lined throughout with galvanized sheet iron. The door, like those of the classrooms, cannot be locked from the outside to prevent the escape of occupants. All other openings in this room can be closed instantly, in case of fire, by pulling a cord near the door.



DONALD G. ANDERSON, ARCHITECT 717 Breadway, Bayonne, N. J.

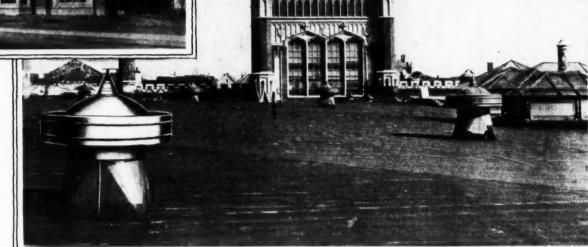


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Ventilation for School Buildings

These ventilators on the Bayonne High School are sturdily constructed of heavy weight copper, making them practically everlasting, and they are absolutely stormproof and troubleproof.

There is no upkeep expense and there are no moving parts to get out of order or to require lubrication.



"Globe" Ventilators furnish efficient ventilation for schools of all sizes,—from the smallest frame portable school to the largest permanent building such as is pictured here. Detail Sheet of "Globe" Ventilators will be sent on request.

GLOBE VENTILATOR COMPANY

Department J

TROY

NEW YORK

THE BUYING OF SCHOOL EQUIPMENT

(Concluded from Page 91)

Buying in the Open Market

The solution is expert buying in an open market. The expert buyer of school equipment is one who knows the needs of the schools, who makes a study of all the products offered and is competent to judge of their values, who studies the conditions and methods of manufacture and the reliability of producers, who makes himself familiar with standard costs and fair prices, who is openly accessible to salesmen and carefully weighs their arguments and their offerings, who is authorized to buy under the most favorable conditions at the most favorable time, and who is answerable to the board for the educational value of what he buys as well as for the terms on which he buys it. He should be in a position to go to salesrooms in distributing centers to do his selecting at his own discretion, as well as having samples and salesmen brought to him at greater cost at the discretion of the dealers. He should be a competent and expert buyer capable of meeting expert sellers on an equal footing, and without having his hands tied by meaningless formalities of sealed bidding.

No railroad, mercantile business, or great industrial concern would restrict the freedom of the purchasing agents in any such manner. Their buyers are free to go where they can buy to best advantage and to buy when the buying is good. Competitive bidding is sought only on identical standards of quality. Buyers are not kept in the dark until the last moment as to prices, but keep the situation in their own hands by full knowledge of prices, qualities, and competency of the sellers to make deliveries. Such concerns appoint responsible purchasing agents, put them in position to take the initiative and keep control of the situation,

and then hold them responsible for results. Why should not school boards learn from these great concerns whose very existence depends on wise and successful buying?

Sealed bidding is already a farce which serves mainly to increase costs of selling, to tie the hands of the purchasing authorities and to hamper them in the intelligent buying that many of them are able to do in spite of it. The sooner it is definitely and frankly abandoned, the sooner the school equipment industry will be on a basis of one price, fixed values, square dealing, responsibility, satisfaction and service.

PROBLEMS AND PROGRAM OF SCHOOL-HOUSE BUILDING IN ARKANSAS

(Concluded from Page 94)

2. Offering financial aid in the form of subsidies for communities building to meet standard conditions, and providing a revolving loan fund for rural districts in order that they may get a reasonable rate of interest and reduce overhead expenses in securing loans.

- 3. Revising the statutory regulation concerning school bond issues, in order to—
- (a) Provide for the issuing of bonds by a vote of the people.
- (b) Provide for close supervision by central authorities, preferably by the State Board of Education.
- (c) Require the voting of a definite millage to pay the interest and retire the principal of the bonds issued.
- (d) Provide the maximum legal ratio of bonded school indebtedness to the assessed valuation of taxable property in the legal school units.
- (e) Provide for better enforcement of whatever regulation is made.

SOME SCHOOL BUILDINGS I HAVE INHERITED

(Continued from Page 89)

it all my faith in the better order was never shaken. After paying the penalties for the neglectful past we knew that a brighter day was ahead of us.

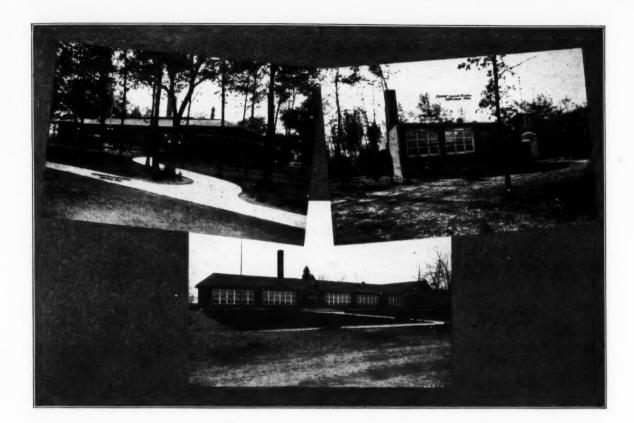
For ten years my office was on the first floor, rear, of the L. High School. Except for a superimposed chicken coop on the roof high above the front door—an after thought—the building was a good looking one. It was built in the days when big roofs were the style, and there was as much space in the attic as there is in a three-ring circus tent. The only difference was that in the tent there is a chance for action; whereas, in this attic the space was useless. It was used to accumulate cobwebs and old junk, and countless posts and props necessary to keep the roof from caving in.

In the matter of orientation, the building was as bad as it could be, because it was so situated that one-half of the rooms have never had a single direct ray from the sun. Moreover, these same sunless rooms are very deep so the north light is insufficient to penetrate more than half the way across them. The building was built and then rebuilt and added to, and somewhere along the line there must have been those who were paid for work and material they did not deliver.

As already stated, my office was in this building. With 250 students and teachers continually scrambling over the place the spookiness of the structure was not apparent, but during vacations when I was the sole occupant, the floors and stairs would begin to creak, and the ghosts would begin to walk. I am not timid or easily led to believe in apparitions, but many a time I have jumped up from my desk and

(Concluded on Page 166)

ealoven The Unit System of Heating and Ventilating



ARCHITECT:

H. T. KEYES DETROIT. MICH.

MECHANICAL ENGINEER:

DETROIT, MICH.

BOARD OF EDUCATION. SCHOOL DISTRICT No. 9, ROYAL OAK TWP., MICH.

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Ferndale is Justly Proud of These New Schools Equipped with Heatovents

THIS progressive Board of Education made a very thorough investigation of the merits of the various heating and ventilating systems now being used in School Buildings, and, as a result, adopted the Unit System as superior to all others. The same care and thought governed their selection of the units for these three buildings.

Every School Board should investigate the Heating and Ventilating equipment for their new buildings,

as this equipment is of prime importance to the health, welfare and comfort of the children. In fact, the Heating and Ventilating System is really the Heart of the School Building.

All Heatovents are fully guaranteed to give the desired results and are backed by our fifty (50) years experience in the proper method of heating and ventilating School Buildings.

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Every XOXC() Fixture reflects in every detail, beauty, utility and durability, covering efficiency in economy and operation and absolute satisfaction in

Our experts are always at your service and will be glad to offer any suggestions on any and all your plumbing problems.

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PIONEER MANUFACTURERS OF PLUMBING FIXTURES FOR SCHOOLS

UNIFORM HIGH SCHOOL MARKING

UNIFORM HIGH SCHOOL MARKING

The Washington state committee on high school marking has presented a report in which it recommends that all high schools adopt a five-step grading system, the lowest of which shall indicate failure. The report which is presented by Mr. M. E. Morgan, chairman of the committee, recommends that the following changes be made:

1. Uniformity in the number of steps is desirable in transferring student records from one school to another.

(a) Five steps seem to be coming into most general use throughout the state and country.

(b) Recent educational studies indicate that five divisions are sound in theory.

2. Rapid abolition of percentage equivalents of letter grades.

five divisions are sound in theory.

2. Rapid abolition of percentage equivalents of letter grades.

(a) Five steps define a student's accomplishment with reasonable exactness.

(b) The human mind does not distinguish 100 degrees of accomplishment.

3. That marks given be A, B, C, D, E, reading from highest to lowest divisions.

(a) These are in most common use.

(b) Where the system at present in use would necessitate a change of printed forms, a stamp showing equivalents in local and general grading systems could be used on forms sent to other systems. This would involve very little expense. The change to the new system could be made when present forms have been used.

4. That grades in divisions A, B, and C approximate the distribution on the normal curve: A, 7 per cent; B, 24 per cent; C, 38 per cent; D, 24 per cent; E, 7 per cent.

(a) As these are the three recommending grades, it is more important that they mean as nearly as possible the same in different school systems.

(b) Some would be willing to go further and

nearly as possible the same in different school systems.

(b) Some would be willing to go further and apply the curve to the two lowest divisions, but in some systems, classes are segregated according to intelligence, and failures are extremely low, a D grade being given to students of low ability who perform as well as might be expected of one of such ability. This will, of course, mean that approximately 31 per cent will be D and E combined.

(c) This is not an attempt to force teachers

This is not an attempt to force teachers to conform to an arbitrary grouping, but rather

to get individuals to follow the standard set by the group as a whole. It is reasonable to assume that relative ability is fairly constant throughout the state for large groups. We will always have the exceptional small group.

5. That teachers in each system be encour-

aged in studying standardized tests with a view to furthering their usefulness, but that in the absence of a sufficient number of such tests for high school subjects no further uniform practice be recommended.

6. That if this or any other system of uniform grades be approved by any considerable number of school systems, a committee be appointed to design a uniform credential blank for use in transferring credits from one school to another

TEACHERS AND ADMINISTRATION

TEACHERS AND ADMINISTRATION

—The 1926 annual report of the school system of Johnston, R. I., contains a brief article on the professional progress of teachers, showing the preparation, experience, ability, and attitude of the principals and teachers in the schools. Of the 47 teachers and principals in Johnston during the past year, 20 were normal school graduates. During the past year, nineteen teachers attended professional improvement courses at the Rhode Island College of Education of Brown University. Several teachers, who were not normal school graduates, have taken work nearly equivalent in the extension courses at the normal school. courses at the normal school.

The town is fortunate in having a large number of capable, experienced teachers, but is unfortunate in its inability to hold only two-thirds of the teachers from one year to another. One-third of all the teachers were new to the school system during the past year, and the same situation is almost an annual occurrence. The situation is indicated in the following table:

Total Experience

Average experience 6 years.

Years in Johnston
Years 1 2 3 4 5 6-10 11-15 16-20 over 20
No.teachers 15 8 4 6 1 3 1 2 7

It is brought out that the annual loss of teachers is due to several causes, namely, near-

ness to the large cities with great opportunities and better salaries; lower salaries than in other towns of equal size, and the small number of girls preparing for the teaching profession.

—Lawrence, Mass. The school board has school department, and all who may be employed in the formula of the school department.

school department, and all who may be employed in the future, must reside in the city. An exception is made in the case of those now employed, who may live elsewhere than in Lawrence. The effect of the rule is to keep teachers now employed from moving out of the city, and to require all those elected in the future to live in Lawrence.

—Cincinnati, O. The teaching staff has intimated that it favors a salary plan under which all teachers, regardless of sex, or position in the schools, shall be paid equal compensation. It was urged that the same salary be paid both elementary and high school teachers.

—An analysis of the number of teachers' certificates issued by the various counties of California last year shows a decrease of 1,039 over the previous year, according to State Supt. W. C. Wood. Mr. Wood shows that 13,368 certificates were issued. Of this number, 13,194 were issued or diplomes or other credential and were issued on diplomas or other credentials and 254 on examination.

It was pointed out that the teachers' examination as a means of recruiting teachers is passing. The teaching body has become more stable and the school enrollment is considerably less than it was during the last five years.

—Supt. H. S. Gruver, of Lynn, Mass., has presented a recommendation to the school board in which he asks that an increase of \$500 be made in the salary of the assistant superintendent; that a super-maximum salary of \$300 be granted to teachers provided they attain certain require-ments, and that increases in the minimum salary be given all teachers.

be given all teachers.

—Charlottesville, Va. Supt. A. L. Bennett recently conferred honor certificates upon 38 of his teachers and school officials for having served the schools of Virginia 25 years or more. Of this number one was Mr. Harris Hart, the Superintendent of Public Instruction of Virginia Nineteen of these officials were colored ginia. Nineteen of these officials were colored



Detroit Masonic Temple Geo. D. Mason & Co. Architects

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Partitions of





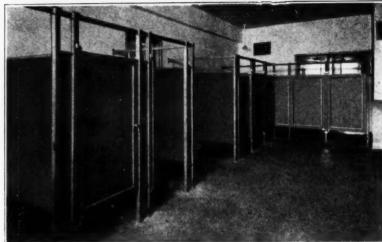


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For manual training departments, laboratory use, corridors, etc., Mills Metal Industrial Partitions are especially recommended.



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CLEVELAND, OHIO

SALARY LEVELS OF SUPERINTENDENTS
AND PRINCIPALS
The Department of Elementary School Principals of the National Education Association in outlining its campaign for higher pay for school administrators has declared that new scales must be established at the top if leadership is to continue.

to continue.

The department urges a salary schedule for superintendents ranging from a minimum of \$4,000 per year in communities of from 2,500 to 5,000 population, to a maximum of \$30,000 a year for superintendents of schools in cities of more than 100,000 population. A salary of \$10,000 a year for principals in the larger cities is asked. It is urged that a maximum salary of not less than \$10,000 for the principalship in cities over 100,000 in population and that no distinction he made between elementary and secontinction be made between elementary and secondary schools. In all communities the maximum should bear a relative relationship to the maximum given.

TEACHERS' SALARIES

-Payment of full salary during leave of absence on account of sickness or other necessary cause is granted school teachers in at least 35 cities of the United States of 100,000 or more 35 cities of the United States of 100,000 or more population for periods ranging from one to twenty days or more. Some additional leave on part pay is given by school authorities in 26 cities. Of 43 cities reporting, eight do not grant any leave on full pay, though all but one grant some leave on part pay, according to figures compiled by the U. S. Bureau of Education and published by the Interior Department in City School Leaflet No. 21. Part pay following a period of full pay, or part pay alone, is ing a period of full pay, or part pay alone, is granted by 33 cities of this size for periods of

five to twenty days or more.
Of 120 cities of 30,000 to 100,000 population reporting, sixteen grant no leave with full pay, but grant some leave on part pay. Full pay for periods of from one to twenty days or more is granted teachers in 104 cities, and of these 53 grant some additional leave on part pay. Part pay following a period of full pay, or part pay alone, is granted by school authorities in 81 cities with population of 30,000 to 100,000, for periods of from five days to twenty or more.

The New York Federation of Teachers' Associations has recently announced its opposition to the single salary plan of the Citizens' Commit-tee on Teachers' Salaries on the ground that "the inevitable consequence would be a general lower-ing of schedules." The Federation recommends ing of schedules." The Federation recommends a general revision upward in the major salary schedules proposed by the Committee, including an increase of \$340 in the maximum for the 16,000 teachers of the kindergarten to B group.

—At a meeting of the Mayor's Committee on Teachers' Salaries, it was recommended that the New York City training schools for teachers be reorganized on a four-year collegiate basis. These schools are now organized on a three-year

PERSONNEL IN SCHOOL ADMINISTRATION

In a study submitted by Prof. Harry S. Ganders of the Colorado State Teachers College to the United States bureau of education, the personnel of those identified with the local school system, and the degree of that identification is enumerated.

Prof. Ganders summarizes his findings as follows:

follows:

School officers: Mayor or city manager, 1 per cent; city treasurer, 3 per cent; city auditor, 0.4 per cent; some other municipal body or officer, 12 per cent; board of education, 100 per cent; committee of board, 72 per cent; clerk of board, 71 per cent; secretary of board, 32 per cent; treasurer of board, 14 per cent; superintendent or supervising principal, 92 per cent; architect, 2 per cent; inspector, 3 per cent; assistant superintendent in charge of buildings, 12 per cent; principal of senior high school, 64 per cent; principal of elementary school, 91 per cent; principal of elementary school, 91 per cent; principal of private school or preceptress, 7 per cent; principal of elementary school, 91 per cent; principal of private school or preceptress, 7 per cent; assistant senior high school principal, 0.6 per cent; general supervisors, 38 per cent; special supervisors, 68 per cent; head of department, 12 per cent; home-room teachers, 43 per cent; classroom teachers, 100 per cent; special and commercial teachers, 25 per cent; doctor, 31 per cent; school nurse, 50 per cent; board of health nurse, 8 per cent; county nurse, 26 per of health nurse, 8 per cent; county nurse, 26 per

cent; dentist, 13 per cent; attendance officer, 78 per cent; dean of girls, 0.6 per cent; librarian, 1 per cent; janitor, 100 per cent; storekeeper, 25 per cent; superintendent's clerk, 59 per cent; principal's clerk, 30 per cent; doctor's clerk, 8 per cent; dentist's clerk, 4 per cent; student officer, 2 per cent; special employee, 60 per cent.

HYGIENE AND SANITATION

—Full-time school medical inspectors have been employed in the following cities and villages: Albany, Amsterdam, Cohoes, Dunkirk, Elmira, Endicott, Fredonia, Hornell, Jamestown, Kingston, Lackawanna, LaSalle, Lockport, Middletown, Mt. Vernon, North Tonawanda, Nyack, Olean, Oneonta, Oswego, Owego, Peekskill, Schenectady, and Syracuse.

Full-time physicians are employed at the New York State College for Teachers and at the Fredonia Normal School.

—The Madison birth school, New York City.

donia Normal School.

—The Madison high school, New York City, which serves lunches to 4,000 pupils daily, has eliminated hot dogs, pastry, tea and coffee from the menu. To accommodate the 4,000 lunchers, the lunch period is spread over three school periods of 45 minutes each. Approximately one-third of the school occupies the lunchroom at a time. The first group is served at 11:18 A. M. The serving is done mainly by students, who receive brass pay checks, which they may use in purchasing their own lunches or for which they may receive cash at the cashier's window. they may receive cash at the cashier's window.

—In Mississippi the teachers and pupils collected a Thanksgiving fund to be used for boys and girls of the state requiring surgical treatment and who are unable to bear the expenses of proper physical care.

-An outbreak of 25 cases of diphtheria was reported recently in Coffeyville, Kans., by the city health officer. Arrangements were made for cultures from all grade schools, and 83 children were found to be carriers of diphtheria organisms. No cases occurred in the schools after the cultures were taken and the carriers removed. The physicians of the city, with the cooperation of the state health board, completed immunization of 2,000 children with toxinantitoxin in November last.



Alvernia High School

Plumber:
M. J. Corboy

Architects:
Brust & Phillips



Summit High School
Summit, N. J.
Plumbers:
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Architects:
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Viroqua High School Viroqua, Wisconsin Plumbers: Smith Hardware Co. Architect: E. J. Hancock



Glassboro, N. J.
Glassboro, N. J.
Plumbers:
Heat & Power Co.
Architects:
Guilbert & Betelle
Arnold H. Moses



Bronxville High School
New York City
Plumbers;
Moran Engineering Co,
Architects;
Guilbert & Betelle
Harry Leslie Walker



Woodrow Wilson High School New Rochelle, N. Y. Plumbers: George E. Gibson Co. Architects: Guilbert & Betelle

Helping to Make Installation Costs Final Costs



HERE is an old proverb that runs, "All is not gold that glitters." This is especially applicable to plumbing. Beautiful white fixtures with shining brass fittings mean little until they have undergone the tests of time.

After a few years of service, plumbing begins to show its true value. Cheap, poorly constructed fixtures rapidly wear out and become useless. Then comes the expense of repair and replacement.

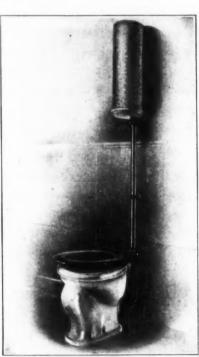
It is with this in mind that so many architects, plumbers, and school boards specify Clow for all plumbing.

All Clow equipment is carefully designed, manufactured according to exacting standards, and put through complete "set-up" tests before shipment. As a result, perfect quality, fit and operation are assured.

These things, in connection with an impressive list of Clow installations that are living through their fifth, tenth, and fifteenth year of service, show why Clow helps to make installation costs final costs.

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Clow Automatic Closet for Schools

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Not only keeping step with the times but also contributing many noteworthy advances toward better methods, Buffalo-Carrier engineers offer exceptionally competent service in providing adequate heating and ventilation for all types of school buildings.

Buffalo-Carrier fan and heating systems provide a positive uniform circulation of fresh, warm air without drafts. Every section of each room is kept at the ideal temperature and humidity for most effective work. The results show in terms of more regular attendance and better work.

Carrier Air Washers

The incoming air is actually WASHED—not strained—free from dust, soot, and bacteria before being circulated. A definite control of air humidity is also provided.

Carrier Non clogging spray nozzles assure continuous trouble-free service. Write for complete description.

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Signs warn PAGE protects

School grounds—where so many small feet rush back and forth—are a problem this day of heavy motor traffic.

In their enthusiasm at play, youngsters forget the dangers of the street. Almost unavoidable injury—sometimes death results. Who is responsible?

"SLOW DOWN—SCHOOL"—is just one more sign to some drivers. Page Fence draws the safety line between the yard and street. Superintendents of schools specify it where protection is needed for buildings and grounds.

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Write for illustrated literature and the name of the nearest distributor.

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PAGE FENCE



This compact but efficient laundry unit at Central Junior High School makes it unnecessary to keep on hand an extensive supply of linen and uniforms, and in-sures prompt and perfect service.

Central Junior High School, Kansas City, Mo.

"Not only practical —but indispensable"

that's the way the School Board puts it

Central Junior High School is one of the modern high schools of Kansas City which has its own laundry—an "all-American" department. And with the laundry under the direct control of the school officials, such articles as uniforms, cafeteria linens, laboratory aprons and towels can be handled quickly and inexpensively.

The Board of Education of Kansas City will be glad to tell

you of the advantages of having a school maintain its own laundry-tell you, too, how at the Central Junior High School the laundry is not only practical, but indispensable.

May we add a word about some of the other school laundries we have planned and installed? A card will bring you some very interesting information.

THE AMERICAN LAUNDRY MACHINERY COMPANY, Norwood Station, Cincinnati, Ohio

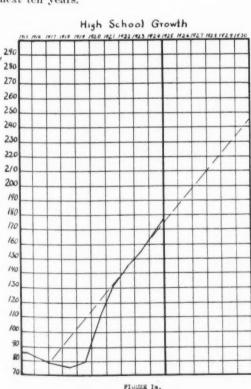
The Canadian Laundry Machinery Co., Ltd. 47-93 Sterling Road, Toronto 3, Ont., Canada

Agents: British-American Laundry Machinery Co., Ltd. Underhill St., Camden Town, London N.W.1, England

GRAPHIC PRESENTATION OF BUILDING NEEDS

(Continued from Page 60)

does not a public service corporation constantly check the growth of a city or the movement of its people? Sub-stations are put in not for today, but to take care of the business of the next ten years.



Should not the schoolman count on the future also, taking into consideration all the factors involved in the immediate needs and the needs that the future will make inevitable? No progressive community wants to pay for a

building that will be obsolete in two or three years -not if they can visualize such expected growth. Hence, the importance of graphic presentation of such needs.

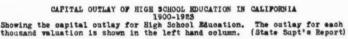
Four points stand out as needing emphasis in such campaigns. They are as follows:

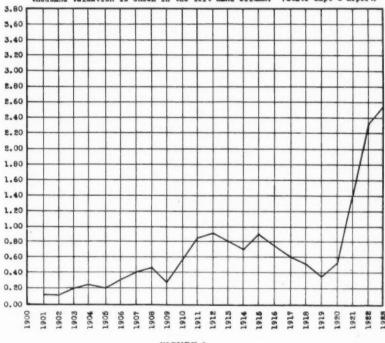
- 1. Growth of the high school enrollment (taken as a type for this article).
- 2. Growth of the contributing eighth grade classes.
 - 3. School costs.
- 4. Value of plants-a comparison, like enrollments, etc., considered.

They are, briefly, what the passage of time has made necessary, what the dollar will buy, and what may be expected in the way of expenditure if the normal growth is to be

cared for without uncommonly burdening the taxpayer.

Checking upon successful campaigns have shown the wisdom of this procedure. An adjacent school campaign as well as my own proved the premise. Incidentally, the method of checking on lighting, ventilation, drawing people to the community, and giving the boys and girls a fair chance of health, may be used in whole or in part depending upon the importance of such items in a particular case. The writer's effort, here, has been to present a





form that would be of value in any small community building campaign.

But a brief explanation of the figures attached is necessary. High school growth is graphically shown in Figure 1 with further conjecture in 1a. There has been an increase in this instance from 83 in 1915 to 173 in 1925. The growth of the elementary grades contributing pupils (Fig. 2) from 22 to an average of about 50 is shown. Fig. 3 shows the increase of capital outlay of high school education in California, 1900 to 1923. The outlay for each

The pressure may varythe stream never does!

Automatic Stream Control Keeps Stream At Constant Height - Two-Stream **Projector Gives Practical Drinking Mound**

In Halsey Taylor Drinking Fountains, sanitation is secured without the use of protective devices. The stream does the work! Because the stream is practical to drink from, lips do not touch the projector. Because the water is always at constant height, regardless of pressure variation, one can drink from the same point at all times! This means the utmost in health-safety-a big factor in choosing a fountain for schools!

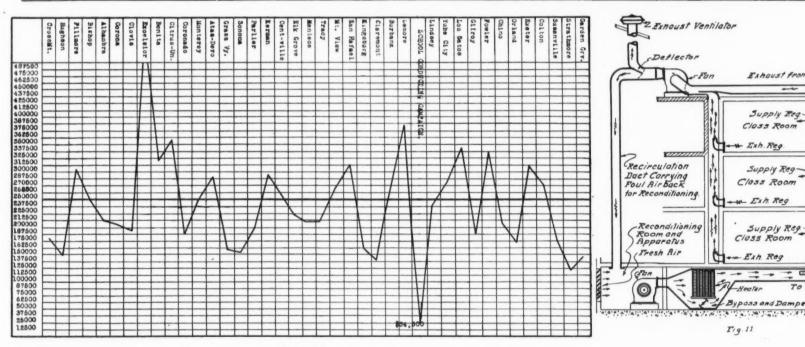
Automatic Stream Control and Two Stream Projector produce this safety factor! Get the full details - find out today why Halsey Taylor fountains are the types usually specified for school installations!

The Halsey W. Taylor Co., Warren, O.

HALSEY TAYLOR.

DRINKING FOUNTAINS





thousand valuation is shown in the left-hand column. Figure 4 shows the value of the plant enrollment, and about equal resource. as compared with other communities of like drawing shows the school seeking a new plant had but a plant valued at \$34,500. This plant was built for 75 students but had to house 178 and expected normally 240 by 1930. They got a new \$200,000 plant despite strong opposition in previous campaigns where the facts the public is interested in were not properly presented.

Further data might be appended to the suggestions offered but that outlined will be found sufficient for a strong presentation graphically of the building needs of the small community. THE PROS AND CONS OF SCHOOL
VENTILATION
(Continued from Page 64)
perature at the proper level, and to use the

warm air for ventilating purposes only.

This system, if properly operated according to requirements, is the best so far promulgated, but has the disadvantage that janitors, if given sufficient radiation to heat the rooms in moderately cold weather without the use of ventilation, will in many cases, do just that very thing. That is, they will turn steam into the radiators so as to make the building comfortably warm and fail to operate the ventilating fans. This produces heat for the building with no ventila-

From this it is plain that in a split system the ventilation may be neglected to the detriment of the pupils' and teachers' interests. We, therefore, have advocates of the older type of hot-blast system where no radiation is used and fans are used to heat the building. Yet, here again, if we consider the abuse of the system by the operators, we must give up the re-circulation idea, and go back to the old expensive scheme of throwing the exhaust air away because it is just as possible for the janitor to run his re-circulation all day (if it is provided), when, instead, he should be feeding fresh air into the rooms, as it is for him to neglect to operate the fans in the split systems. (Continued on Page 150)

EGLASS FENCEOSURES D



Girard College, Philadelphia Builds Lord & Burnham Greenhouses

FES, you are right, Girard College uses its greenhouses for the most part to grow plants and flowers for general use on the grounds and in the buildings. Therefore, the growing scope is a large one, giving a broad opportunity for the study of plant life.

You'll note that in this last house we erected for them there are at least 10 different things growing in sufficient abundance to make consistently constant any students' observation.

Allow us to call your attention to the iron frame of the general structure. Likewise to emphasize that every inch of wood used is highest grade greenhouse cypress. As we have mentioned before, this combination makes the most satisfactory structure in every way.

To the services of our School Department you are welcome. Be assured you will be entirely free from any obligation expressed or implied.

BUILDERS OF GREENHOUSES

lord & Burnham 6.

Builders of Greenhouses and Makers of Boilers

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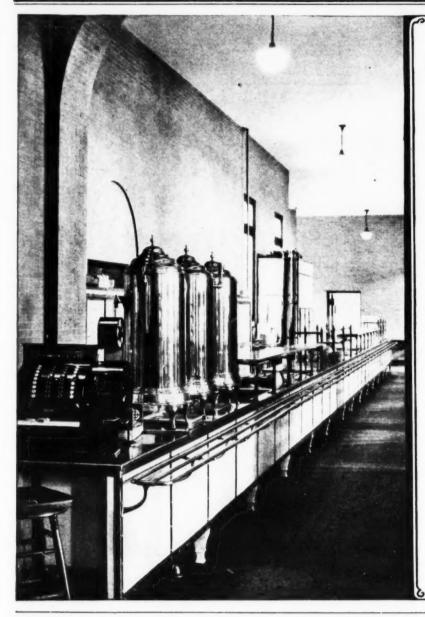
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The John Van Range G.
EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD
CINCINNATION

NEW ORLEANS CLEVELAND ATLANTA

CHICAGO LOUISVILLE

(Continued from Page 148)
The Question of Humidity

With the advance of the art of air handling came the matter of humidity or dampness of the air. Relative humidity is simply the percentage of dampness in the air against the maximum dampness which might be encountered at the same temperature. Thus, if air can carry a certain amount of water in the form of vapor at 70° F. and it actually only contains half of that amount, then the relative humidity is 50%, while if the air only contains one-quarter of the possible maximum, then it is said to have a relative humidity of 25%. When the air contains 100% it is said to be "saturated" because it can contain no more vapor. Any excess vapor over 100% immediately condenses and precipitates on adjacent cool surfaces in the form of "sweat" or steaming.

One peculiarity of humidity is that it varies with temperature; this is because air at a high temperature carries more water vapor than at a low temperature. Thus, if air is taken into a building at zero temperature, and raised up to 70° or 80° for purposes of ventilation, it may still contain the same amount of water vapor as before but, because its vapor capacity has been enormously increased, the relative per cent of humidity has dropped way down and the air is excessively dry.

Most authorities agree that, regardless of temperature, the relative humidity should lie between 60% and 80% of saturization and 70% is accepted as a more or less standard figure. Having arrived at this conclusion, it was not hard to reason out that, if a way could be found to saturate the air at a proper lower temperature, then when it was raised up to the 70° or 80° required it would exactly contain the desired relative humidity. This tempera-

ture was found to lie between 50° and 60° , so all that remained to be done was to saturate the air at this temperature, raise it up to the required 70° or 80° and the humidity arrived at the ideal point of 70%.

To saturate the air, a scheme was devised with a series of atomizing nozzles which shot a misty spray of water into the air after it had been warmed to the proper temperature for saturation. To confine this mist a box was put around the nozzles and baffle plates were inserted at the outlet to prevent minute particles of water being carried out into the ventilating system. It was found that the water spray wet all the dust and dirt in the air and cleaned it just like a spring shower only much more efficiently owing to the finer atomization. Thus, the air washer was born which today is one of the recognized means of washing air and the only means of supplying the required humidity for ventilating systems.

To utilize the above it was found necessary to supply a "pre-heater" sufficient to raise the incoming cold air to 35° F. (to prevent freezing the water in the air washer), and "air washer" to clean and saturate the air at whatever temperature desirable, and a re-heater to raise the air from the air-washer saturization temperature up to the temperature at which it is to enter the room.

With an installation such as the above, combined with a temperature control and an air distribution system, it is possible to distribute a predetermined quantity of air in every classroom, the air being cleaned, of a proper temperature, and containing the desired amount of humidity. It is to be doubted whether any other system can show the results it is possible to obtain with the "split" system, and certainly the economy is high.

Introduction of Automatic Control

It is almost a necessity with such systems to use automatic control. Such control takes all responsibility off of the teacher, and to a large extent, relieves the janitor because such regulation automatically maintains the required temperatures in the air washer and ducts, as well as the room temperatures controlled by opening and closing the radiators. The writer has personally checked over schools so equipped in zero weather which showed no classroom in the whole building more than 2° above or below the ideal 68° F.

(To be concluded in February Issue)

THE NEW YORK STATE COMMISSION ON VENTILATION

(Concluded from Page 78)

and in answering requests for assistance of school authorities, all over the country, who are interested in this procedure. The commission proposes also to study legislation in the various states and to consider possible standards of ventilation which might be recommended as substitutes for the present requirements based on discredited theories.

In again assuming an active rôle in this field, the commission will be financed, as in the past, by grants from the Milbank Memorial Fund, and it is particularly fortunate in having through this connection, the opportunity to collaborate with the local health and educational authorities in the health demonstrations of Syracuse and Cattaraugus County, New York, which are also financed, in part, by the fund.

In each of these demonstration areas factfinding surveys and comparative studies will be conducted in typical schools.





The Appeal of Cleanliness and Beauty in **School Cafeterias**

"TT'S a fine place to eat!" This expression of student satisfaction is brought out as often by a clean, bright, inviting appearance, as it is by the serving of good food.

Cleanliness does appeal. It makes good food taste better. It creates the environment dietists demand.

Vitrolite is the one material that will give an eating place the desired cleanliness, sanitation and beauty. It is the ideal material for walls, ceilings, counters and table tops. Its glistening, fire-polished surface of pure white creates an appetizing appearance and places the serving of food in the proper setting.

Vitrolite has many superior advantages both from the standpoint of beauty and economy. It is non-porous and will not stain or discolor. It will not craze and will never grow dull. It saves the expense of table linen. A damp cloth cleans it in a jiffy.

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to increase class room efficiency — gain greater success from teachers' efforts. Mail the coupon for important data.

See just how schools and universities everywhere are using this remarkable new aid to visual methods of instruction. How by focusing pupils' attention on subjects under discussion, a keener perception of the subject is awakened, concentration developed, teachers' efforts rewarded with greater success, and classroom efficiency heightened greatly. The coupon brings complete information which every school board member should have. Clip it now.

A Definite Need

With ordinary methods of instruction the attention of pupils is often scattered about the class room. Objects in and outside the room catch the eye. Minds are distracted. Pupils' thoughts are divided between the subject under discussion and objects not connected with class room activities. Interest lags. Teachers' time is lost in the endeavor to compel attention. Class room efficiency is reduced. And often the efficiency of whole schools is thus impaired.

New Method



New Method Holds Interest

Now there is a new method of instruction. A method used by universities and many high schools everywhere. With this new method all illustrations pertaining to subjects to be discussed are mounted on a single compact fixture composed of a number of wings swung vertically on a central pivot. As points are discussed, illustrations are easily swung into view by the teacher. All attention is concentrated upon a few square feet of space. And yet these few square feet give a display area equivalent to all of the blackboard space in the room. Because display area is thus multipled, these fixtures are called Multiplex Educational Display Fixtures.

Amazing Results

Wherever employed, Multiplex Equipment focuses pupils' attention on the subject being discussed. It compels attention. Thus it avoids distraction. It develops concentration and awakens a keener perception and appreciation of the subject.

Teachers' efforts are rewarded with amazing success.

The efficiency of many class rooms is thus increased. In addition to affording a remarkable aid to class room instruction, Multiplex Equipment is ideally suited to general display purposes.

Used Everywhere

Let us send you our catalog and price list, with interesting information about how hundreds of schools and universities are improving class room efficiency and securing amazing results from teachers' efforts with Multiplex Equipment. Use the coupon. No obligation is attached to your request. We only want to give you the facts which every school board member should have on matters of educational interest. Tear out the coupon now.

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Multiplex Display Fixture Company St. Louis, Mo. 921 North Tenth St., Without obligation, I would like to know more about the new method of instruction with Multiplex Educational Display Equipment. Tell me what universities and high schools are using it and how. Give me complete information for my files. Name City..... State.....



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DURING the past year the demand for Remington Typewriters for instruction purposes in the commercial schools of America has been without a parallel in typewriter history.

This demand clearly indicates the outstanding merit and popularity of the Remington as a teaching machine. also reflects the enormous prestige and reputation of the Remington product throughout the business world.

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Over head and out of the way

AND yet when you want it, a sound proof air tight partition in a moment's notice. That, in short, is our horizontal rolling partition.

In our half century in business, we have installed nearly 30,000 of these partitions in schools and churches in all parts of the country. And to any one of them we are always glad to refer.

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WALL EQUIPMENT AND WALL TREAT-MENT FOR SCHOOLROOMS

(Concluded from Page 42)

The installation of modern window ventilation has its own technique, and only those who have studied the system in actual operation should be entrusted to make installations. following factors are regarded as essential.*

Radiators are placed under the windows that are to be opened and the feed pipe is placed at the top of the radiator. This causes a current of warm air to rise, forming a curtain in front of the window

A deflector is placed at the bottom of each window giving the incoming air an upward The cold air thus mingles with the motion. warm air rising from the radiator.

The smoke test shows that most of this tempered mixture gradually settles down into the breathing area. A portion thereof, however, finds its way over to the vent which is placed on the opposite wall about 3 feet from the ceiling. The remainder is drawn up from the floor, reheated by the radiator, and makes new circuits about the room.

Whatever amount of air leaves the room at the vent, an equal volume enters, mostly through the windows. Thus we have a system of partial recirculation automatically maintained within the room.

It is important that a shield be placed in front of the face of each radiator to avoid the overheating of pupils seated near the radiators. Of course this shield must not extend so near the floor as to prevent the radiator from drawing up the cold air from the floor so as to reheat it.

The designing of the vents is of great impor-Two systems are in use. Under the

gravity system devised by the late Samuel H. Wheeler in Fairfield, Conn., each room has two vents leading straight up to the roof. The face of each vent has a small double-hung window, which may be opened or partially closed. It is so simple that even the children see its effect. Under the system of exhaust fans as used in the large Weaver High School in Hartford, Conn., of which Frank Irving Cooper was the architect, one vent from each room leads to an exhaust fan serving a group of rooms. It is important that these fans should be designed and operated so as not to produce excessive air movement and needless cost in ventilation.

The objection is sometimes raised that teachers will not devote sufficient attention to the system. This objection is unfounded. The teachers on arriving open the windows a small amount from the bottom. Thermostats, as in the Weaver School, then take up their duty and regulate the amount of heat necessary to maintain a satisfactory condition at all times.

Opponents of window ventilation evidently have not taken the trouble to visit schools with a modern system of window ventilation, for the objections which they urge are men of straw. An article recently circulated under the caption "Half Truths" was completely riddled at a recent meeting of the American Public Health Association. This Association has gone on record as favoring window ventilation in the interests of health and economy.

In conclusion, excellence in arrangement of wall equipment, and attractiveness in design of schoolroom walls, merit increasing attention. The location and relative height and arrangement of blackboards, corkboards, picture-hanging wall, and built-in cases must be studied in order to promote convenience and produce pleasing and restful lines. Color schemes should not only be in good taste but should aid illumination and avoid glare.

BUILDING SCHOOLS IN DENVER

(Continued from Page 44)

(Continued from Page 44)

7. Junior high schools with an ultimate capacity of 1,500 and over shall be provided with two gymnasiums, each 50 feet by 80 feet. Senior high schools with an ultimate capacity of 1,500 and over shall have one gymnasium 60 feet by 100 feet and another 50 feet by 80 feet. One of these shall be for boys, the other for girls.

8. Locker rooms and showers shall be provided of sufficient size to provide locker facilities for the entire school on the assumption that all pupils will be required to take the health education work.

Wardrobes

Wardrobes

The method of caring for pupils' wraps is of fundamental importance in planning the building and should be settled definitely before preliminary sketches are started. In Denver, wraps were taken care of in steel lockers built in the corridors for all pupils, except those in the kindergarten, for whom hooks were provided in a small adjoining room. By employing the corridors for this service two important uses are assigned to the halls, namely, for traffic and wardrobes. Multiplicity of uses for the different school facilities has become an important economic consideration, and consequently as many services as possible should be assigned to the corridors. Another advantage of having lockers in the corridors is the ease with which they can be supervised since the lockers are in the open and not hidden in classrooms or alcoves.

The following standards were adopted for

Elementary School Corridor Lockers.

Height-60 in.

Width-15 in.

Depth--12 in.

Shelves-2 shelves, the first one 6 inches from the top of the locker, and the second, 6 inches from the first shelf

Partition-A vertical partition dividing the hanging space below the shelves into

^{*}The system here described especially for parts of the country where heat is required during a large part of the year and where the ordinary double hung win-dows are used. In warmer sections of the country or where other types of windows are used, modifications may be warranted.

"Health Bubblers" for School Needs



Rundle-Spence Vertico-Slant Sanitary Drinking Fountains are needed in the school building and on the school grounds. These "health bubblers" refresh and invigorate all who drink.

The contamination of lip-contact is automatically eliminated because lips can't touch the R-S nozzle. The slight slant stream prevents water from falling back upon the jet. Besides, R-S Vertico-Slant Fountains take up little space, check the waste of water and give continuous service over a period of years.

The R-S line includes Sanitary Drinking Fountains, Bath and Plumbing Fixtures and Supplies. Write for illustrated catalog with complete information.

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Handsome vitreous china one piece fountain. Combines all the conveniences of the ver-tical stream with the special slanting stream feature. Glass cup may easily be filled

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A pedestal fixture of galvan-ized pipe with extra heavy vitreous China bowl and vertico-slant stream. An extra strong fountain for the playground.



two equal parts, each 71/2 inches wide, should be provided.

Junior and Senior High School Lockers. Height-72 in.

Width-18 in.

Depth-12 in.

Shelves-2 shelves, at the top of locker, the first being 8 inches from the top and the second 8 inches below the first shelf. Partition—A vertical partition should be provided dividing the hanging space into two equal parts each 9 inches wide.

Each locker accommodates two pupils, but has only one door. Thus, an elementary school pupil has a shelf and a hanging space for his coat 71/2 inches wide, 12 inches deep and 48 inches high. The high school lockers furnish one shelf for each pupil 8 inches high, 18 inches wide, and 12 inches deep, and hanging space 9 inches by 12 inches, by 56 inches high. It was found that lockers had to be divided in this way in order to provide an adequate number of lockers to take care of the school enrollment.

Some Results of the Program

The method used in employing and directing the architectural services secured the utmost confidence and cooperation of the architectural fraternity, with the result that Denver has today beautiful, well-built, and economical buildings admirably adapted to the various types of educational programs.

Citizens are highly pleased with the fact that the board of education was able to give actually more than was promised during the bond campaign of 1922. One elementary school with accommodations for 300 pupils, in addition to those promised was built, and instead of providing for 6,000 pupils, the elementary schools erected will actually house 7,560, which is 1,560 more than promised.

The two junior high schools were erected for 3,200 pupils as stated in the campaign, with a

balance of about \$40,000 in the junior high school bond fund.

The three senior high schools as stated above were erected at over a quarter of a million dollars below the original estimates. In addition to this, the schools will house over 600 pupils more than anticipated during the campaign.

To summarize briefly, it seems that the outstanding achievement of the building program is that school buildings, in which no features necessary to complete the educational process have been omitted or even cramped, have been built at lower costs than estimated, and that these buildings are as a whole works of architectural beauty and variety. Superintendent McAndrew of Chicago, in the January number of the Educational Review, says, after visiting several Denver schools, "A beauty contest for school buildings would find Denver giving other contestants much concern."

THE ENFIELD HIGH SCHOOL

(Continued from Page 47)

auditorium to see and hear when the combined 100ms are used. The folding partitions are heavy enough so that the usual gymnastic work going on in the gymnasium does not interfere with classes in the auditorium on the other side. This arrangement also provides seats for the spectators while there is a basket ball game in The stage is supported by sixthe gymnasium. teen broad, ball-bearing casters, thus permitting it to be moved easily. The casters are covered with rubber so that no marks are left on the floor.

The building is 168 feet in length and gives the appearance of a two-story building, although the basement rises so much above the ground that it gives the space and utility of a threestory building. The front is a plain design with the exception of four pillars at the main entrance which gives it a touch of the colonial. The roof line is broken by a deviation in front.

Over the doors is a tablet with the name of the school and date.

The main entrance leads into the corridor, which runs lengthwise of the building. On the left hand are two small rooms for the principal, and on the right a teachers' rest room. Directly in front are the doors leading into the auditorium. On this floor are eight classrooms. Between two of them is a collapsible partition so that the two rooms may be used for a large study room or for group gatherings for special purposes. It is also designed for use by town associations where a smaller room than the auditorium is desired. It is on a separate heating unit, together with the principal's office and the teachers' rest room, so that these rooms may be heated at a nominal cost.

On the upper floor are five regular classrooms. a typewriting room, a large study hall to accommodate 75 pupils, in front of which is a library separated by glass windows, and three science rooms. The arrangement of the study hall and library permits the teacher in charge to easily supervise both rooms and gives the study pupils ready access to the library. The laboratory tables in the physics and chemistry laboratories are arranged so as to leave a hollow square in front of the teacher's desk large enough to accommodate 24 tablet arm chairs, thus permitting the rooms to be used for recitation purposes as well as laboratory. The other science room is equipped with biology tables, thus adapting it not only for biology but for elementary science or other subjects.

In the basement are two rooms for domestic science, a small room for use as a model dining room, one room for music, one for drawing and one for shop work. Besides these there is a lunch room large enough to accommodate 250 pupils, and dressing rooms and showers for both boys and girls. Toilets are placed in the basement and on the second floor.

(Concluded on Page 160)

The School Problem of Ash Removal

-and how it can be solved

FROM the cumulative experience acquired in 1,440 school installations of G&G Ash Removal Equipment, Gillis & Geoghegan have made a thorough analysis of the school problems of ash removal.

Considered broadly, the school problems of ash removal are four fold, but with one common solution-the proper type of G&G Telescopic Hoist Equipment.

PROBLEM No. 1

Small volume of ashes. (About 6 cans daily.) Short distance of lift. (About 10 feet.) Hoistway opening against side of building.

SOLUTION

S PECIFY a Model A G&G Telescopic Hoist operated by hand power. Hoisting head revolves on ball bearings and can is depositings and can is deposited on pavement clear of hoistway without tilting or spilling of ashes. Empty cans are lowered by gravity under control of powerful band brake with brake lining. One man can easily perform the entire operation of man can easily perform the entire operation of ash removal. Operator exerts a pressure of only 12¹/₄ lbs. in raising an average filled can weigh-ing 175 lbs. at speed of 30 feet a minute 30 feet a minute.

Model A

PROBLEM No. 2

Small volume of ashes.
(About 6 cans daily.)
Short distance of lift.
(About 10 feet.)
Hoistway opening near
curb or in driveway.

SOLUTION

SPECIFY a Model B G&G Telescopic Hoist with Overhead Crane, operated by hand power. As hes are dumped directly into wagon without rehanding consent grade level ling cans at grade level. One man can easily perform the entire operation of ash removal. The Hoist occupies little space and, when not in use, no part shows above grade. Filled cans raised at a speed of 30 ft. a minute and hoisting pressure of only 121/4 lbs. is required for the average can weighing 175 lbs.

Model B

To aid school officials and architects, the four principal classifications of school ash removal problems are given below, together with a recommendation that solves each problem and provides the school with speedy, laborsaving, economical ash removal.

Where a special problem is presented, which involves an unusual combination of conditions, Gillis & Geoghegan will be glad to help in the selection of the proper type of G&G Hoist.

PROBLEM No. 3

Large volume of ashes. (More than 15 cans daily.) Deep hoisting area. (15 feet or more.) Hoistway opening against side of building.

SOLUTION

S PECIFY a Model E G&G Telescopic Hoist electrically oper-ated. This Hoist is built for heavy continuous duty and tests have proved it to be astonishingly economical in current consumption. While a large volume of ashes might make it desirable to employ more than one man, Hoist can be practically oper ated by one man and is therefore a labor-saver. Loads up to 500 lbs. are raised at a speed of 60 ft. a minute and are lowered by gravity.

Model E

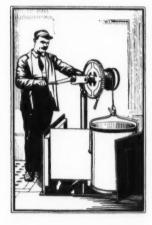
PROBLEM No. 4

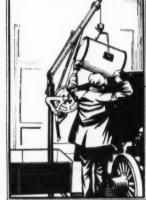
Large volume of ashes. (More than 15 cans daily.) Deep hoisting area. (15 feet or more.) Hoistway opening near curb or in driveway.

SOLUTION

S PECIFY a Model D G&G Telescopic Hoist electrically operated. This Hoist has the Overhead Crane feature which makes it possible to dump ashes directly into wagon without rehandling at grade. The motor is mounted near base of Hoist and two men can easily handle a large quantity of ashes. Loads up to 300 lbs. are raised at a speed of 60 ft. a minute. Surprisingly little current is used in the operation of this Hoist.

Model D











Complete Safety and Maximum Economy Require Complete Equipment

Telescopic Hoist

T Is solve the school ash removal problem completely, full advantage must be taken of the safety features and labor-saving devices of G&G Hoists, by specifying the installation of complete G&G Equipment, which includes Hoist, Operator's Ladder,

Fixed or Swing Bail Hoisting Cans, Checkered Steel or Vault Light Sidewalk Doors, with Spring Guard Gates, Automatic Sidewalk Door Opening-Closing-Locking Device, Warning Gong and Ash Can Truck. Write for a G&G Catalog.

GILLIS & GEOGHEGAN

551 West Broadway, New York

EUREKA JUNIOR HIGH SCHOOL

(Concluded from Page 48)

ent high school. The thirty acres of land includes a huge gulch which has since been converted into a stadium encircled by a quarter mile track. Between the shops and the bleachers is the proposed swimming pool, with dressing rooms on either side for boys, girls, men, and women. Then to the south end of the stadium is the proposed open-air threatre stage with dressing rooms, which with the swimming pool pavilions will be built of rustic lumber or of logs, halved and spiked together, neatly and sanitarily finished on the inside.

The level of the upper ground where the high school buildings are located is approximately 120'; while the grade of the floor of the stadium is 65'. It is a most impressive view to stand at the heights and to look down at this stadium occasionally spotted with stumps of redwood trees, ten, twelve and fifteen feet in diameter, mute reminders of the great forest which prevailed there years ago.

Returning to the story of the scheme—from this plot plan one can see that Mr. Albee's vision for an educational center has been fairly well executed. First the junior high school provides for the pupils of the seventh, eighth, ninth, and tenth grades of the school district. The present high school serves the pupils of the eleventh and twelfth grades of the high school and the classes above. Then to the right, when the center building becomes overcrowded, which will probably occur in the course of ten years, a new high school will be built leaving the present high school for junior and commercial work.

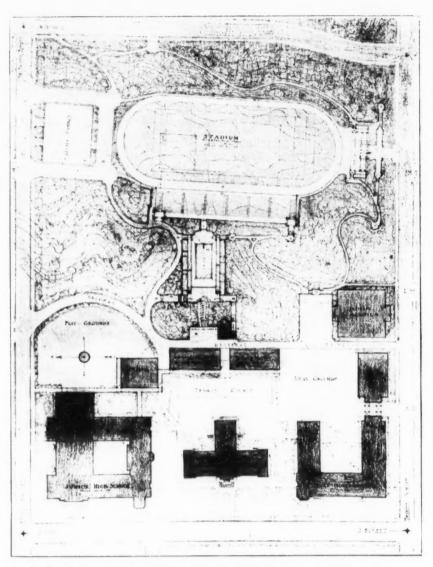
The first floor plan of the junior high school shows the classrooms around three sides of an interior court. The north side of the court is formed by the assembly hall, east of which are the boys' and girls' gymnasia. On this floor are nine classrooms averaging 22'x27' and each capable of seating 35 pupils. Six additional rooms are used for the present as shops, later to be converted into classrooms, as the enrollment may warrant. One study hall 22'x58'; library 27'x49' with a stack room 14'x22'. Two mechanical drawing rooms, each 22'x31'; two general science laboratories; administration suite; teachers' rest room; and the boys' and girls' gymnasia each 41'x75'. The latter are so arranged that by means of folding doors they may be converted into one room. These folding doors extend the entire length of the room and are 15' high. It is so planned that portable bleachers can be placed in the girls' gymnasium back of the line of the folding doors thus making available the entire floor of the boys' gymnasium for indoor games.

The second floor contains eighteen classrooms; one sewing room; one cooking room; typing and bookkeeping room; two art rooms; and one assembly room with stage, having a seating capacity of 150. This room is now much used by students and citizens of the community.

In the basement are boys' and girls' locker rooms, showers and dressing rooms; also the heating plant.

A summary of the above for educational purposes shows that there are 33 classrooms and 15 departmental rooms. All of which is interesting to observe for it shows the percentage of the total number of rooms used as departmental rooms. A matter which throws into the discard any rule of thumb method of computing the cost of schools by the cost per classroom (a very misleading method of estimating the cost of proposed school buildings).

The assembly hall is quite a feature. The orchestra floor is 63'x100' long. The stage additional to this is 26' deep by 63' wide. The balcony is 38'x63'. The total seating capacity is 1200 seats. For once the architect has had a fair opportunity to develop a school auditorium



PLOT PLAN OF THE EUREKA JUNIOR HIGH SCHOOL, EUREKA, CALIF. John J. Donovan, Architect, Oakland, Calif. Howard Gilkey, Landscape Architect,

in a manner which has eliminated the usual barn-like interior treatment of school auditoriums. This is largely due to the vision of the members of the board of education and the superintendent of schools, as it was their intention to place this building at the disposal of the people of Eureka for operas, musicals, etc.

The photograph of the auditorium looking towards the stage shows that provision has been made for an organ. The stage is completely equipped in the way of drapes, hangings, curtains, and equipment in order that the auditorium may fully function as a theatre. Strange as it may seem the acoustics are almost perfect and yet nothing very special was done beyond that of giving form to the room and a rough texture surface to the plaster and providing velour curtains for the windows.

At this time, I wish to pay my respects to Dr. Frank W. Hart and Dr. Lars H. Peterson of the Department of Education, University of California, whose contribution of the preliminary survey for this building aided materially in the formation of the plans.

Also to Mr. George C. Jensen, former principal of the Eureka secondary schools and now director of research for the California Teachers' Association.

The cost of this building which follows no doubt will prove interesting to the readers of this article, but I should like to emphasize the fact that the bids on the general and electrical work were unusually low and while the cost per cubic foot is 23c and the cost per square foot is \$4.62, I most heartily recommend that in preparing a preliminary estimate for similar work that at least 20% be added to these figures as a matter of safety. This statement, I believe, is due the readers of this article who may be influenced by this cost data.

Heating 28,947.00 28,947.00 28,947.00 Plumbing 16,409.46 16,409.46 16,409.46 Electrical 20,075.00 20,075.00 20,075.00
\$412.942.72 \$414.542.72 \$426.742.72 Architect Fee 6% 24.776.56 24.872.56 25.604.56
TOTAL COST\$437,719.28 \$439,415.28 \$452,347.28 General Contract Percentage of whole \$347,511.26—79.4% \$437,719.28
Heating Contract Percentage of whole 28.947.00—6.6% Plumbing Contract Percentage of 9437.719.28
whole
Electrical Contract Percentage of 20.075.00 4.5% \$\frac{20.075.00}{\$437,719.28}
Architect's Fee Percentage of whole 24.776.56— 6.0% 8437.719.28 1.895.899 cubic feet in buildings. 94.590 sq. ft. floor
Cost 1st Proposal— area. <u>\$437.719.28</u> —\$.23 per cu. ft. <u>1.895.899</u>
$\frac{$437.719.28-$4.62}{94.590}$ per sq. ft.
\$437,719.28—\$364.77 per pupil. 1,200
Cost 2nd Proposal— \$439.415.28—\$.231 per cu. ft. 1.895.899
\$439.415.28—\$4.64 per sq. ft.

Low Bid .8347,511.26

CHANGE IN DATE OF MEETING

-\$.238 per cu. ft

\$452.347.28 \$4.79 per sq. ft.

1.895,899

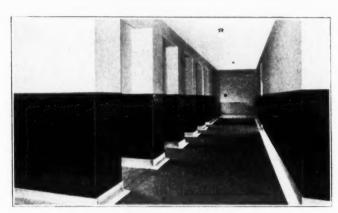
The executive committee of the Department of Superintendence, N. E. A., has distributed a questionnaire among the members of the Association asking whether it is desired to change the date of meeting, and if changed, what date is most acceptable. It appears the constitution of the Department fixes the date of the meeting as the last Monday in February, and the three succeeding days, and it was the opinion that it might be desirable to change the date to a more acceptable time.



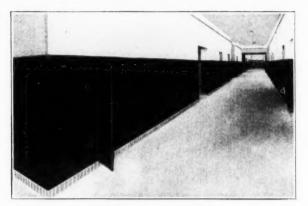


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Durabilt Two Party Lockers, George Gray School, Wilmington, Delaware.

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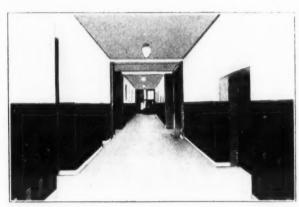
For instance, in Lancaster, Pa., both the East and West End High Schools have Durabilt "one party lockers" recessed in the corridors and alcoves. This method of installing is nicely displayed in the illustration above. The lockers are single tier with doors louvred only at the bottom while the tops are perforated with round holes for connecting to ventilating air ducts in the walls.

Three fine schools at Wilmington, Delaware, have complete installations of Durabilt recessed "two party lockers." These lockers are equipped with two shelves and a vertical partition extending from the lower shelf to the bottom of the locker to provide space for two pupils whose belongings are kept separate although the one locked door is used by both.

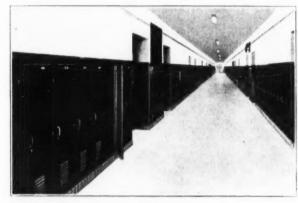
In arranging for these lockers all available wall space was used to best advantage. The accompanying views illustrate how thorough Durabilt methods are in overcoming installation difficulties.

Where the necessary floor or wall space can be obtained and the maximum convenience is desired, then it is always best to have Durabilt standard "one party lockers." However, in schools and other places where individual lockers cannot be used, Durabilt "two party lockers" will prove highly satisfactory because they are practical in design, well built in every respect and very economical in cost.

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SCHOOL

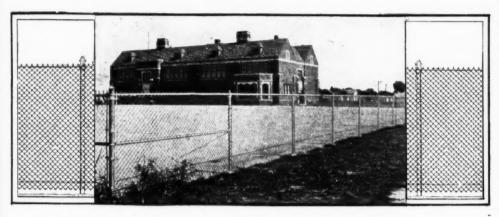






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ENCLOSURES

CHICAGO CORRESPONDENCE

CHICAGO CORRESPONDENCE

During the past week Chicago has been agog over a sudden flare-up of a politico-educational "school war". For nearly a year there had been no serious difficulties aired before the public. However, when Mayor William E. Dever recently nominated four school board members and sent their names to the City Council for confirmation, he unwittingly precipitated sufficient charges and counter charges to warrant the expectation of a lively winter—at least until after the February aldermanic and mayorality primaries.

mitil after the February aldermanic and mayorality primaries.

The names of the four nominees were sent to the School Committee of the City Council. The proposed trustees are high-caliber citizens. Dr. Otto L. Schmidt, surgeon; Mr. Charles J. Vopicka, ex-school trustee: Mr. Walter J. Raymer, ex-alderman and president of a bank; Mrs. Helen M. Hefferan, a school trustee and parent-teacher association worker. Following are some of the developments:

1. The Chairman of the Council Schools Committee has intimated that the Committee does not expect to confirm the proposed trustees unless they promise to oust Superintendent William McAndrew. Alderman Brieske said, "It is time we were getting a home town man at the head of the schools." All of the big daily newspapers have rallled against this stand.

The Chicago Tribune has editorialized by saying that Mr. Brieske's remarks raise two questions. First, why remove one of the best superintendents our schools have had? Second, why, if he is forced out get a "home town man"?

The answer to the first question is this: Mr.

schools have had? Second, why, if he is forced out, get a "home town man"?

The answer to the first question is this: Mr. McAndrew has made bitter enemies, as any other superintendent who is fit to run our schools would have made them, because he has insisted upon running the schools for the benefit of the children and not for the benefit of politicians.

The answer to the second question is that the term "a home town man" means one who will shift and place teachers according to pull, who will take a friendly view of school sites and of other questions of administration and expenditure, and who generally has an "acquaintance with the local atmosphere."

Of course, if our object is to do the best possible for the children, we should always get the best available educator and administrator of school affairs, whether he is to be found in Chicago, or New York, or Bangor, Me., or Tulsa, Okla.

2. The Council Schools Committee is prepared to investigate school policies of the Educational Department. J. Lewis Coath, the only trustee who is being displaced, made sensational charges, among them being, "Your children are being used as 'white mice' for the educational experiments of the National Education Association of New York." Harold O. Totten, reporter for the Daily News is quoted as saying that prompted by Margaret Haley, business agent of the Chicago Teachers' Federation and traditional foe of the superintendent, the aldermen have attacked economy measures, emeritus service, platoon schools,

junior high schools, principals' appointments and a host of other matters.

Acting President, Julius F. Smietanka, has denied the various charges.

Acting President, Julius F. Smetanka, has defiled the various charges.

The hearings in educational policies of the Superintendent are still going on, and Superintendent McAndrew has yet to be heard from.

3. Miss Margaret Haley, business representative of the Chicago Teachers' Federation, has charged before the Council Schools Committee that school board budget items have been padded to make the financial situation look more serious. Acting President Smietanka responded by saying "Under the most favorable circumstances we can now see the possibility of being able to finance ourselves only through November, 1927." The Schools Committee has asked the Council to authorize an audit of school board finances.

4. Former Mayor William Hale Thompson has announced his candidacy for mayor subject to the 1927 primaries. The plank in his platform which deals with schools is as follows:

"Supt. William McAndrew has encouraged the cir-

primaries. The plank in his platform which deals with schools is as follows:

"Supt. William McAndrew has encouraged the circulation of foreign, unpatriotic propaganda in our schools to poison the minds of our children against the founders of our country. He is responsible for the removal of patriotic pictures from the schoolroom walls, and for the creation of class between the children of the rich and the poor."

Mr. Thompson pledges himself to appoint men and women who will work toward the removal of the superintendent.

5. Alderman Oscar Nelson, member of the Council Schools Committee and leading spirit in the "investigation," has announced that he will have introduced in the 55th General Assembly a bill containing the provision that (1) School board membership be reduced from eleven to five, that (2) Trustees be nominated by the mayor and confirmed by the city council, that (3) trustees receive a salary of \$10.000 per annum each, and that the (4) trustees be removable by a two-thirds' vote of the city council.

From time to time laments are heard that our city the

by a two-thirds' vote of the city council.

From time to time laments are heard that our city school systems are becoming "factory-ized"—that children's health and happiness are being impaired under city school conditions. On the other hand, we find ex-governor Lowden intimating that rural schools are decidedly inferior. Mr. Lowden is quoted as saying, "If the inequalities which now exist continue, we shall not much longer be able to keep normal boys and girls upon the farm."

Anent this situation, R. C. Moore, secretary of the Illinois Teachers' Association, has released a tabulation of statistics dealing with physical examinations of 31.713 Illinois school children in various sections of the state. Following is a tabulation of the findings:

Per Cent Defective

26.15% Weight (7% from normal)..... 22.00% 6.43% 20.800

WESTBORO HIGH SCHOOL, WESTORO, MASS.

(Concluded from Page 46)

The building has a frontage of about 145 feet, and a depth of about 95 feet, and with the floors mentioned contains accommodations for about 500 pupils. The contracts amount to \$264,000.80.

ENLARGING THE SCHOOL BUILDING

(Concluded from Page 76

The school has an enrollment of 530 and a teaching force of nineteen, under the direction of Superintendent F. E. Maxon. Mr. Maxon has been in charge of the school for five years and under his able management the school has become a vital factor in the community life of Richfield. Not long ago the community showed its appreciation of Mr. Maxon's services by giving a reception in his honor.



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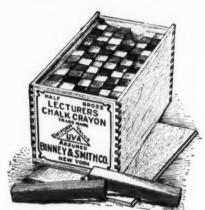
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WESTERN HOME FOR HOUGHTON
MIFFLIN COMPANY
The lover of good books not only delights in knowing something of the authors who write them, but also likes to learn something of the publishers who make books and authors possible. The origin, growth, and achievements of a publishing house, and particularly one that has made a distinctive contribution to the nation's literature are not without importance from the standpoint of a patron.

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which has characterized the nation in all its

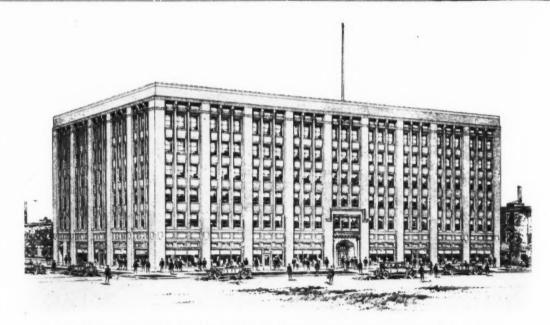
The enterprise had its beginning in four lines The enterprise had its beginning in four lines of succession. The one known as the Old Corner Bookstore of Boston began in 1828, another known as the H. O. Houghton & Co., also known as the Riverside Press, began in 1852. The

as the Riverside Press, began in 1852. The other two at a later date.

The first enterprise was conducted by Carter, Hendee & Co., 1828; Allen & Ticknor, 1832; William D. Ticknor & Co., 1835; Ticknor, Reed & Fields, 1845; Ticknor & Fields, 1854; E. P. Dutton & Co., 1865; A. Williams & Co., 1869; Cupples & Co., 1883; Damrell & Upham, 1887; The Old Corner Bookstore, Incorporated, 1902.

The second line of succession, as already stated, had its beginning with the firm of H. O. Houghton & Co., in 1852. It became Houghton, Osgood & Co., in 1878, and Houghton, Mifflin & Co., in 1880. The third line began with the firm of Fields, Osgood & Co., in 1868, became James R. Osgood & Co., in 1871, and joined with the Houghton interests in 1878. What might be termed the fourth beginning is noted in the be termed the fourth beginning is noted in the establishment of the firm of Hurd & Houghton in 1864, which also combined with the Houghton Osgood & Co. In 1881 the Osgood interests drew out and conducted business under the name of James R. Osgood & Co., later under the name of Ticknor & Co., and in 1889 rejoined Houghton, Mifflin & Company. Since 1908 it has been the Houghton Mifflin Company.

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PERSPECTIVE OF NEW BUILDING OF THE HOUGHTON-MIFFLIN CO., CHICAGO, ILL

accorded the services of the company throughout the country. It not only means the expansion of the business as such, but also that the spacious home in the Midwest will in future enable the firm to meet the demands of its patrons in a more expeditious and satisfactory

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We congratulate the Houghton Mifflin Company upon its splendid new home in the Mid-west, and bespeak for that historic publishing house all the success to which it is so justly entitled. The founders of the great firm probably never dreamed that the present proportions could ever be attained, and yet modern enterprise, energy, and constructive ability, so characteristic of American life, is bound to lead to worth-while achievement.

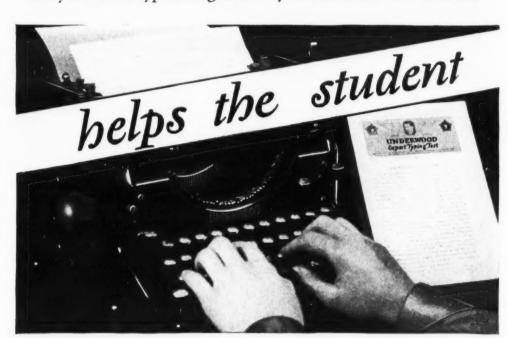
THE ENFIELD HIGH SCHOOL

(Concluded from Page 154)

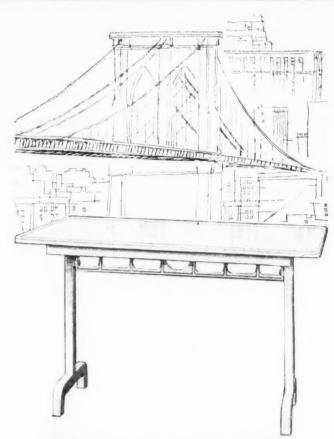
The building, exclusive of architects' fees and equipment, cost \$240,000; the latter together with the extras, such as heating of the building during construction, insurance, and excavation of a ledge for the sewer, cost \$37,500.



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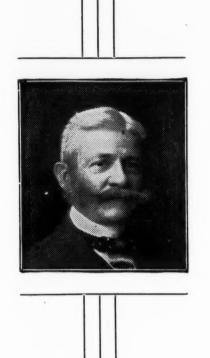
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picture, and cannot fail in fascinating the little picture, and cannot fail in fascinating the little

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The high percentage of failure in high school

Latin has led to attempts, during the past few years, to devise ways and means of foretelling what success pupils may be expected to have in studying Latin.

Several factors need to be considered in fore Several factors need to be considered in fore-telling a pupil's success in Latin. Ability to handle Latin situations such as are met in the study of the subject may be measured by per-mitting the pupil to study some Latin and by testing the results of his efforts. The present test, which is intended for this purpose, con-sists of simple Latin lessons covering the fundamental principles, with a test for each lesson. The pupil's school habits may be measured by the average opinions of previous teachers, and a rating sheet may be used for this purpose.

The test of first-year Latin consists of nine a test of first-year Latin consists of fine parts. Of these, six include both a lesson and a test on the lesson. The total time for taking the test is fifty minutes, which means that reading instructions, giving out tests, collecting papers, etc., may be done in one hour.

The sheet gives directions for giving the test, for scoring, for recording scores, and for applying the results of the test. There is also a school-habit rating scale, giving a list of characteristics for success in school work and the method of rating pupils on the basis of these traits

The House and Its Care

Mary L. Matthews. Cloth, 425 pages. Little, Brown & Co., Boston.

This book has been prepared to fill the demand for a text suited to advanced high school or junior college classes in which the project method is used. The work begins with the bedmethod is used. The work begins with the bedroom on the supposition that every girl is interested in making her own room attractive and artistic. It then takes up the bathroom, the kitchen, the dining room, and in logical order the living room, the library, and the various service rooms, and the plumbing, lighting, heating, etc., of the house. The entire range of the problems of care, selection, and purchase from the artistic, economic, and hygienic standpoint are taken up in a general, discussionary and thought provoking style. While facts and principles are clearly stated, the intention is to have the student carry on her own investigations and to study her own situation so that she may solve it with all factors considered.

The final chapter is devoted to home manage The final chapter is devoted to nome management and takes up specifically the spending of money, the care of the sick, the care of children, and the higher duties of woman or home maker. This chapter is not so satisfactory as the balance of the book, because it seeks to cover too large a field in too brief a space. No one would consider a generalization on morals like that on page 385 as even approaching a code to which any God-fearing mother would subscribe.

The Red Badge of Courage.

By Stephen Crane. Cloth, 242 pages. 12mo. Edited by Max J. Herzberg. D. Appleton & Co., New York.

Edited by Max J. Herzberg. D. Appleton & Co., New York.

The most graphic word picture of a battle, in the English language, well describes this book. Whether its stark realism and horror are sufficiently overbalanced by its sympathy and its subtle literary qualities to make it desirable for high school reading, is a question which will cause many teachers, we think, to hesitate.

Story Book Tales

By Mina Pearl Ashton. Cloth, 112 pages, illustrated. Price, \$0.70. Published by Beckley-Cardy Co., Chicago.

This primary reader contains twenty-eight delightful stories written in language that the child can understand. They cover a variety of subjects, both old and new, and are liberally embellished with illustrations.

The author is a primary teacher employed in the schools of Defiance, Ohio. The introductory to the book is written by Supt. E. W. Howey of the Defiance schools, in which he states that "special attention has also been given to the inclusion of material which can easily be retold and dramatized by the children."

Shoe Repairing

and dramatized by the children.

and dramatized by the children."

Shoe Repairing

By Paul E. Klein. Cloth bound, 110 pages.

Published by the Bruce Publishing Company,

Milwaukee, Wis.

Just as the making of a shoe has grown into

an industry in which mass production is aided

by ingenious machinery, so shoe repairing has

become an industry of considerable proportion.

In the present volume the author devices. In the present volume the author devotes thirteen chapters to shoe repairing, and has suc-ceeded in providing a series of instructive

lessons.

He familiarizes his students on the common types of shoe construction, the leathers used by the repairman, the re-soling of all types of shoe construction, and the sewing of rips and patches. The last chapter is devoted to equipment and expensions.

Principles of School Supply Management

By Robert B. Taylor. Cloth, 145 pages.
Published by Bureau of Publications, Teachers
College, Columbia University, New York City.
As an academic discussion of the principles
of school supply management the study just
completed by Robert B. Taylor of Columbia Uni-

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THE LITTLE PIANO WITH THE BIG TONE

versity deserves more than passing mention. We have lacked many similar studies on the side of physical equipment and operation of the school plant. The progress of school architecture has set out in bold relief the plant as a unit for study and improvement.

for study and improvement.

It is unfortunate that the study was restricted to a group of eastern cities and that conferences with experts in the purchase and sale of school supplies could not bring the study to a point of wider interest. Speaking geographically, the cities along the Atlantic seaboard buy school supplies on an entirely different basis from the cities in the central or western states.

Again the sales of school supplies in "free supply" states is very different from the sale of school supplies in the central and western states. The eastern school supply business involves minor items of destructive consumption. The western school supply business is an equipment

western school supply business is an equipment business with school supplies sold on a service basis with distinctive shipping and legal difficul-

The author has set up interesting standards in recommending the purchase of all supplies through the assistant superintendent of schools. In point of service the business department now

represents a most staple employment factor.

In the cities studied the assistant superintendent concentrating on management problems will uncover hours of time for the superintendent of schools to be saved for important superintendent and management work.

will uncover hours of time for the superintendent of schools to be saved for important supervisory and management work.

The study now completed will stimulate interest in further studies on many phases of school management. Dr. Taylor is to be complimented on his field work and his effort to reach conclusions from a great variety of premises and situations. His 51 recapitulations are interesting in the fact that the author has sensed many problems and has suggested solutions in dozens of cases. The tables fix the fact that buying customs grow in cities a good deal like the proverbial Topsy. To change buving habits would mean great savings in time, money and nervous energy.

Physical Education for Primary Schools

By W. A. Ocker. Cloth, 81 pages, illustrated. Price, \$2. A. S. Barnes & Co., New York City. Carefully tested original games and action stories are here provided for primary grades.

Complete directions, music, and illustrations are

combined directions, music, and mustrations are combined for the busy teacher.

Adventures in Storyland

By Frances Lilian Taylor. Cloth, 128 pages, illustrated. Price, \$0.60. Beckley-Cardy Co., Chicago, Ill.

Stories of strong child interest, stressing the idea of adventure in a very preper way make.

idea of adventure in a very proper way, make up this text. Vocabulary, subject matter, illustrations, test material have been carefully studied to be fully in keeping with the latest findings in the science of teaching reading.

findings in the science of teaching reading.

Calisthenics

By S. C. Staley. Cloth, 338 pages, illustrated, Price, \$3. A. S. Barnes & Co., New York City.

The author proceeds upon the thought that calisthenics form an essential part of the national program of physical education. The drills conducted in the schools have grown to an enormous extent. Bad and useless drills have crept in, he holds, and teaching procedures in many instances are faulty.

The present volume seeks to emphasize the useful and helpful exercises and bring them under some organized form. The purpose and function of calisthenics are fully explained, the nomenclature is made clear, and the methods of exercises are well demonstrated. The principles of lesson formation receive adequate attention of lesson formation receive adequate attention and general lesson plans are advanced. All exer-cises are presented with clearness and in many instances illustrations are supplied.

System of School Records and Reports for Smaller Cities

By Harry Stanley Ganders. Cloth, 191 pages. Published by the Colorado State Teachers' College, Greeley, Colo.

It is frequently asserted that school records have not been simplified in manner to demonstrate essential facts and figures with completeness and yet observe the element of time and effort. The author recognizing the economies involved in such records has engaged in an exhaustive study of the subject and has prepared an accounting system applicable to smaller cities.

He not only discusses the status of school accounting as now fostered but points out the essential factors in providing a serviceable system. That system seeks to eliminate waste

whips the entire school activities into a comprehensive and workable system of record keeping.

A Latin Primer
By Clarence W. Gleason. Cloth, 293 pages, illustrated. Price, \$1.25. Little, Brown & Co.,

This book proceeds from the standpoint that Latin should contribute primarily to the student's efficient understanding and use of the English language, and should enable him to write clearly, forcibly, and with good sentence construction.

The lessons begin with the simplest verb

The lessons begin with the simplest verb forms and develop grammatical principles, sentence construction, and vocabulary logically and simultaneously. The fifty lessons carry the work through all the noun and verb forms to the use of the active subjective. Sixteen additional lessons take up the passive subjective, irregular verbs, and such confusing constructions as the ablative absolute, etc. Periodically "vocabulary roundups" are provided for drill and for the review of grammatical principles.

The appendix includes a rich collection of

The appendix includes a rich collection of materials for collateral study, in the shape of lists of prefixes and suffixes, abbreviations, lists of Latin words used in medicine, law and pharmacy, Latin songs, and a condensed grammar. The usual tables of paradigms and vocabularies are added. are added.

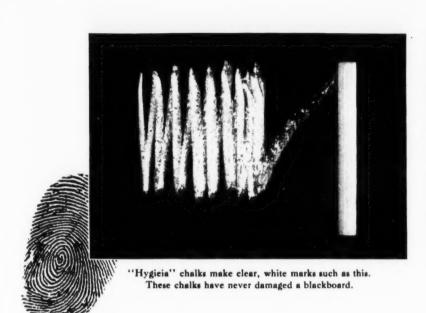
The work throughout is carefully graded and well balanced.

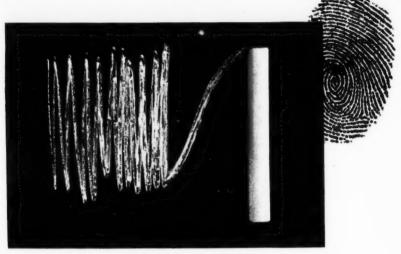
Iroquois Arithmetics
By Harry DeW. DeGroat, Sidney G. Firman, and William A. Smith. Cloth, 350 pages. Published by the Iroquois Publishing Co., Syracuse, N. Y.

N. Y.

The present book completes the three-book series issued under the general title of the Iroquois arithmetics, and fully carries out the promise of the earlier books in the matter of content and material. The same careful attention to ease and understandability of diction, problems based upon present-day conditions in home life, industry, trade, and agriculture, consideration of relative difficulty of number combinations, as indicated in recent scientific studies; ample motivated drills and self measur
(Concluded on Page 166)

(Concluded on Page 166)





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"Probably the most economical method of maintaining the desired level of permanent mastery of arithmetical skills is to be found in the diagnosis of individual weaknesses of pupils and the application of specific corrective drill."—Fourth Yearbook, Department of Superintendence.

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(Concluded from Page 164) ing tests—all these tested features of the earlier books are here improved upon. The work in decimals and fractions reflects recent business practice as does also the material on banking,

practice as does also the material on banking, insurance, etc.

The Art of Brass Repousse

By T. G. & W. E. Gawthorp. Paper cover, 88 pages, illustrated. Price, \$.88. Published by B. T. Batsford, Ltd., London, England. Imported by the Bruce Publishing Co., Milwaukee, Wis.

This manual deals with the ancient art of fashioning metals into objects of art. Amateurs are taught how to manipulate brass and iron into various forms, some ornamental, some utilitarian—all pleasing to the eye.

tarian—all pleasing to the eye.

Mighty Men

By Eleanor Farjeon. Cloth, Cloth, 214 pages, illus-

By Eleanor Farjeon. Cloth, 214 pages, illustrated. Published by D. Appleton & Co., New York City.

This book tells the story of mighty men in ancient and medieval history. Such names as Achilles and Julius Cæsar, of King Xerxes, and Alexander the Great appear in the stories. These stories, some thirty odd, deal with some of the most interesting and stirring episodes of a former day.

Conquering the Air

Conquering the Air Archibald Williams.

Conquering the Air

Archibald Williams. Cloth, 12mo, 315 pages. Thomas Nelson & Sons, New York.

The subtitle expresses the purpose and content of the book: the romance of the development and use of aircraft. While the author writes of the early beginnings and traces the development of all types of balloons, airplanes, and dirigible flying machines to the present time with a fine sense of the difficulties, triumphs, and tragedies of inventors, pilots, and promoters, he never loses sight of facts and he includes sufficient technical details to make the work genuinely valuable. The part played by aircraft in the great war is not overlooked but the more recent and important growth of the transportation element is strongly emphasized. The book is well illustrated.

A Pet Reader

By Edith Wilhelmina Lawson. Cloth, 160 pages. Price, \$0.70. Beckley-Cardy Co., Chicago, Ill.

Edith Wilhelmina Lawson. Cloth, 160 Price, \$0.70. Beckley-Cardy Co., Chi-

cago, Ill.
Delightful stories are told about household pets, wild birds and animals. The text is printed in large type, and the illustrations pro-

duced in color. the child mind. The book is bound to fascinate

SOME SCHOOL BUILDINGS I HAVE INHERITED

(Concluded from Page 140)

rushed all over the building from cellar to garret, chasing something or someone that seemed to be stalking along the stairs and corridors, or prowling in some of the rooms. The real trouble was that the floors were poorly laid, and half nailed down, so when the atmospheric conditions were right there was a continual snapping and squeaking of the floor boards, which sounded absolutely as though someone were walking over them.

The L - School is an eight-room building, and although in a mild climate, it takes five fires to heat it. The architect did not advise such a heating plant and I argued against it, yet the leading factorum of the special building committee was insistent, and he could not be otherwise pursuaded. He wanted to make a record for a low building cost, and other heating systems cost more to install. The fact that a proper furnace, or boiler, would have quickly more than made up the difference in coal consumption was an argument that did not appeal. The plan of the building was good because a regular school architect designed it, but it was interesting to hear the special committeeman, a so-called town father, talk about keeping the plans so that when next the town wanted to build, the services of an architect would not be necessary.

The last building on my memoranda is the I. P. School. I understand there was an architect on this job, but the trouble was that he could not tell a schoolhouse from a church, a The exterior is business block, or a factory. very imposing; by accident the orientation is good, but the rooms are much too large. It is

only a nine-room affair, but there is roof enough over the top and floor space enough for twelve rooms. As it is there are great waste areas on two sides of nearly every room. The ceilings are higher than there is any need of. There are five fires and all outdoors to warm up before getting warm inside. In the big attic of this school there is an assembly hall which will accommodate 400 children or grownups. In the late spring and early fall, just the times when such a hall is most needed, it is too hot up there, and in winter it is too cold. The place must be artificially lighted. It is a great climb up there for the young and the old, but barring these strictures the assembly hall is satisfactory. We now need an addition to this building, and already we have made a wise beginning. We have had plans drawn by a man who knows a schoolhouse when he sees one.

In the foregoing description of the schoolno apparent attention to those finer points in school planning, for the broader use of the buildings or close adaptation to the special requirements of administration and teaching. These things were never thought of or even known by the school committees, the superintendents, or the architects. No wonder the present nation-wide "school building boom" involves so many replacements of old and poorly planned schoolhouses. No wonder either that the state departments of education are taking a hand in the planning of schools and are asking the right to approve or disapprove of all projects.

In this year, 1927, there is no excuse for any school committee to spend public money for any new school, which is not being built according to the plans and specifications of an experienced school architect and has the approval of some competent educational authority.



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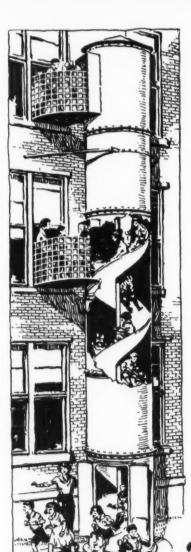
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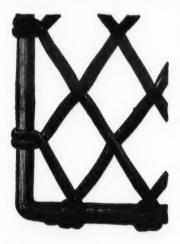


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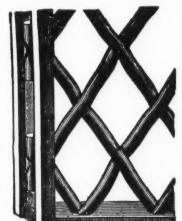


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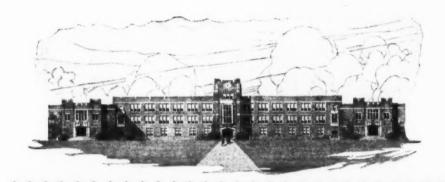
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THE RELATIVE COSTS OF SCHOOL UNITS

In answer to numerous requests from subscribers, the educational research division of the National Education Association has issued a set of tabulations bearing on the relative costs of different school units during the year 1925-1926. The tabulations were prepared on the basis of replies to inquiries as to per pupil costs of the various school units. The inquiry requested information as to the cost per pupil in average daily attendance, and for current expenses, in day elementary schools, junior high schools, senior high schools, and all day schools. The material gives information on cost of

The material gives information on cost of education in cities over 100,000 in population, and cities under 100,000. The figures are again given according to kind of school and according to the group in which the city is listed.

The principal value of the figures are their indication of the relation of per pupil costs in the three school units given. It may be assumed that the same method of calculating per pupil costs in the elementary, the junior high school, and the senior high school is used in any one city. The averages and medians may be accepted with considerable confidence as indicating the ratio of per pupil costs in the three school units in the cities named.

In the study, the cities listed are arranged in

In the study, the cities listed are arranged in two groups. Cities over 100,000 in population and cities under 100,000 in poulation. In the first group in the matter of current expense per pupil, the medians are 82.06 in elementary schools, 113.91 in junior high schools, 146.15 in senior high schools, 95.58 in all-day schools; in the ratio of per pupil costs the medians are 100 in elementary schools, 139 in junior high schools, 178 in senior high schools, and 116 in all-day schools.

In the cities under 100,000 in population, in the matter of current expense per pupil in average daily attendance, the medians are 68 in junior high schools, 97.61 in senior high schools, and 88 in all-day schools. In the ratio of per pupil costs, the medians are 100 in elementary schools, 144 in junior high schools, 189 in senior high schools, and 129 in all-day schools.

SCHOOL ADMINISTRATION NOTES

—An open forum discussion between principals and the school board was recently con-

ducted at Evansville, Indiana, by Supt. J. O. Chewning.

—The local association of commerce of Knoxville, Tenn., has addressed the school superintendents in 32 East Tennessee counties asking that they place signs bearing the school's name on the building; that they enlist neighborhoods in cleaning and renovating the schoolhouses and yards; and that they encourage teachers to brighten and beautify the schoolrooms by inexpensive means.

—Adoption of legislation to eliminate a double-headed state education department in California, and to make the duties of the state board of education purely legislative and regulatory, has been recommended by State Supt. Will C. Wood, in his biennial report to the Governor. The recommendation is only one of a score proposed to reorganize the education department and the schools of the state in general. Mr. Wood declares laws should be passed defining the powers of the state education board



RESCUERS SEARCHING THE RUINS OF THE LA PLATA SCHOOLHOUSE AT LA PLATA, MD., FOR POSSIBLE VICTIMS FOLLOWING THE STORM OF CYCLONIC PROPORTIONS WHICH DESTROYED THE SCHOOLHOUSE, KILLED SEVERAL CHILDREN, AND INJURED SCORES. THE SCHOOLHOUSE WAS BLOWN SEVERAL HUNDRED FEET FROM ITS FOUNDATION.

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which are purely legislative, and the powers of the superintendent of public instruction which is executive and supervisory. Provision should also be made, he adds, for the unification of the entire supervisory staff and for the allocation of professional functions.

of professional functions.

—The research division of the National Education Association has presented the results of a study of "Vacations and Hours of Work of Public School Clerks" in thirteen cities of the middle west and west.

The material in the study was gathered by Mr. H. W. Anderson, assistant superintendent of schools at Denver, Colorado, and reports conditions existing during the school year 1925-26, in the cities of Denver, Des Moines, Detroit, Indianapolis, Kansas City, Kans., Milwaukee, Minneapolis, Oakland, Omaha, Salt Lake City, Seattle, St. Paul, and Toledo.

The material was obtained by means of a questionnaire which sought information on the number of clerks and secretaries employed dur-

questionnaire which sought information on the number of clerks and secretaries employed during the school year, the number of weeks of vacation, the length of service required previous to granting vacation with pay, number of days' vacation on holidays and special days, number of working hours in the school day, amount and kind of Saturday work, offices kept open during summer period, and number of clerks and secretaries employed in central administration offices.

offices.

The replies to the questionnaire show that four cities employ clerks and secretaries for the school year, while two cities employ them for the calendar year. Three cities employ clerks for eleven months in the senior high school and ten months in the junior high and elementary schools; three cities employ them for the calendar year in the high schools and school year in the elementary schools.

Five cities have a summer vacation of two

the elementary schools.

Five cities have a summer vacation of two weeks, one city gives a vacation of fifteen days, one a vacation of four weeks in the high schools, and one a vacation of two weeks to clerks and four weeks to secretaries. The four cities which employ for the school year give vacation at Thanksgiving, Christmas, and spring vacation, as follows: Two weeks, two cities, two weeks and two days, one city, and fifteen days, one city.

Replying to the question of length of service before granting vacations, it was found seven

cities give full vacation after one year of service, one city gives one day each month if employed before April first, and one city gives a vacation after six months' service, and one day for each month for those employed less than six months.

Regarding the matter of vacations on holidays, it was found that the number of times vacations are given on special days varies from five to thirteen. Six cities give less than eight days, and seven cities offer eight days or more.

In the matter of working hours it was found that seven cities report eight working hours in a school day, three seven and one-half hours, and one seven hours. One city has sessions from 8:00 to 4:30 for high schools, and 8:10 to 4:00 for elementary schools, and one has a session 8:00 to 3:15 for elementary schools.

In answer to the question of working hours on Saturdays, it was found two cities have no working hours on Saturday, three have three and one-half hours, three four hours, one four and one-half hours, and two five hours.

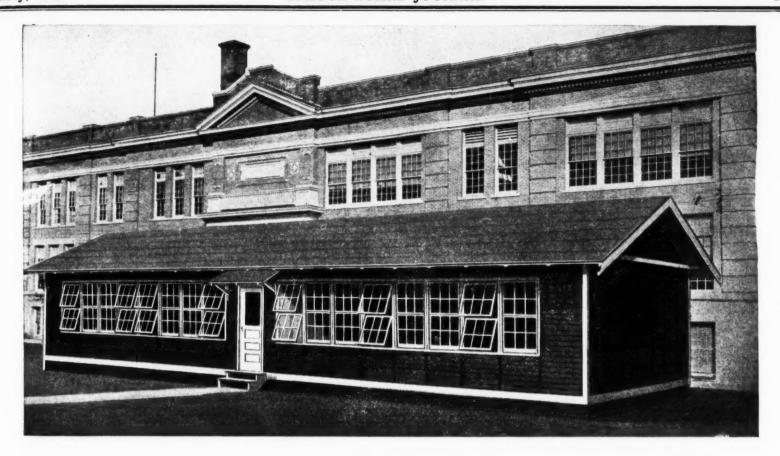
and one-half hours, and two five hours.

In the matter of office hours during the summer vacation, it was found that three cities keep the high school office open all summer, while two cities have the office closed during the summer. One city has the large high schools open all summer, while the small high schools are open eleven months of the year; three cities employ high school clerks for eleven months and keep the office open during that time; one city keeps the school office open for two weeks, and in the senior high school one clerk reports once a week for the summer; one city keeps the office week for the summer; one city keeps the office

(Concluded on Page 172)



SIDE VIEW OF THE WEST BEND HIGH SCHOOL, WEST BEND, WIS. (See Pages 83-84.)



Work that has been done for you...

Everyone that has ever been responsible for the building of a school building knows that a good building involves many, many hours of unremitting study, planning and supervision. Providing for temporary quarters presents an even more vexing problem.

Wherever one to ten rooms, or even more are needed, this problem can be settled at a single meeting of your school board. Circle A School representative can show you how a Circle A School will meet your every requirement of School House Design, Sanitation, Ventilation, and State or other Legal Requirements.

Study the plans, then if you wish, ask users in your vicinity—above all, ask users in your vicinity—and you will readily see why those responsible for the education of America's children out their faith in Circle A Schools.

In the meantime send for our new Catalog—"Circle A Schools."

CIRCLE A PRODUCTS CORPORATION 600 South 25th Street, Newcastle, Ind.

Study of School House Design For 8 years this company has been constantly studying school house design and they are applying the best in permanent design to Circle A Portable Schools.

Preparation of Plans
Circle A Schools are designed by architects skilled in the planning of school houses.

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All material necessary to complete the building is furnished from A-1 stock.

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This company is constantly in touch
with state departments so that Circle A
Schools will meet state requirements.

Supervision over Building Circle A Schools are shipped in complete sections — that are bolted together after the foundations and floor are in. A carpenter and three laborers can erect a one-room school in less than a week.

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Circle A Schools are truly portable. A
large part of their cost can always be recovered after the need for them has passed.
You never know when this work will be
valuable. Send today for our new cata-

You never know when this work will be valuable. Send today for our new catalog. It is free to board members and school officials and teachers.





STORAGE IN SCHOOLS

Our first impression when we started manufacturing the Miller School Wardrobe was that it should be used only in GRADE SCHOOLS. Subsequently we were requested to furnish this wardrobe for JUNIOR HIGH SCHOOLS. The cities that have put them in Junior High Schools are now putting them in the HIGH SCHOOLS.

WHY?

- 1. When wrap storage is in the class room, you have PERFECT DISCIPLINE and SUPERVISION.
- 2. NO PETTY PILFERING as wraps are under the eyes of teacher and pupils all the time.
- 3. CLASS MOVEMENTS are SPEEDED UP as there is no going between classes to the wrap storage space to secure books, etc.
- 4. RECORD OF ALL TARDINESS accurately kept. In addition to the wardrobe placed in class room or where the class assembles, there is placed in the corridor by the principal's office a four door set of Miller Wardrobes. THIS IS KNOWN AS THE LATE WARDROBE. Pupils arriving late must hang wraps here. This wardrobe kept under lock. Must go in principal's office to get into this wardrobe.
- 5. Classes assembled and dismissed from A GIVEN POINT. No leaving school prior to dismissal time.
- 6. PERFECT VENTILATION of wraps. Not possible in any other system of wrap storage in schools.
- 7. NO TEMPTATION to go to wrap storage place in case of fire the same as when wrap storage is kept in
- ELIMINATION OF NOISE as this wardrobe is noiseless in its operation. 8.
- 9. NO COST OF UPKEEP. First cost the last cost.

For complete information on the MILLER SCHOOL WARDROBE, write for catalogue W-6.

K-M SUPPLY COMPANY

123 West 8th Street, Kansas City, Mo.

(Concluded from Page 170)

open during June and two weeks before the opening date; one city keeps the senior high school office open three weeks after closing time and before the opening date, and junior high schools one week after closing and before opening. Two cities have the elementary school office open one week before the opening date.

A total of thirteen cities reported that clerks and secretaries in the central office were employed for the calendar year.

—Mr. L. V. Morgan, superintendent of schools

ployed for the calendar year.

—Mr. L. V. Morgan, superintendent of schools of DuPage County, Illinois, says that since 1921 school children emigrating from Chicago have increased the school population of the county more than seventy per cent, and have advanced the annual cost of operation \$266,550 a year. In 1921 there were 6,200 elementary school pupils in the county and 1,265 high school students. In 1926, there were reported 10,483 grade pupils and 2,303 high school students.

It is pointed out that in practically all the nine grade school districts of the county the school tax is four per cent, the highest limit permitted under the Illinois school law. The financial distress is so great that plans are now under way to levy a special school tax of one per cent above the four per cent limit in emergency cases. gency cases.

—The educational measurements bureau of the New York State Department of Education has mapped out a series of interesting problems as part of its program for the current school year. The projects listed by the bureau are varied in nature, and include an investigation of the difficulties encountered in the teaching of subject-matter, pupil-teacher incompatibility, influence of attendance on scholarship and case influence of attendance on scholarship, and case studies of rapid advancement.

studies of rapid advancement.

—The State Commissioner of Education of New York, on December 6th, dismissed the appeal of the American Civil Liberties Union from the action of the New York City board of education. The appeal was made when the board denied two applications for the use of the auditorium of the Stuyvesant high school for a freespeech meeting. speech meeting.

The Commissioner in rendering his decision pointed out that the legislature clearly intended that boards of education should control the program for Americanization as presented in civic

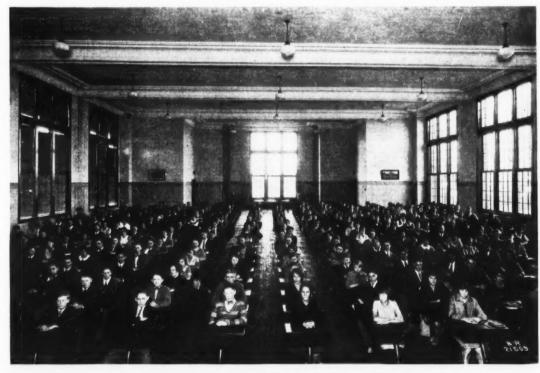
centers and forums the same as any other school activity. It was never the intention of the legislature to throw the school building wide open where organizations and societies of every kind can assemble and discuss subjects of every

A JUNIOR-SENIOR HIGH SCHOOL AT PRE-WAR COST

(Concluded from Page 62)

of retrenchment in school building costs that taxpayers should call for. This kind of retrenchment will occasion no sacrifice of educational opportunities, it will rather tend to encourage more. Architecturally, it ought to spread over our fair land, useful, practical, economical, beautiful, and living masterpieces from which even posterity may draw inspira-

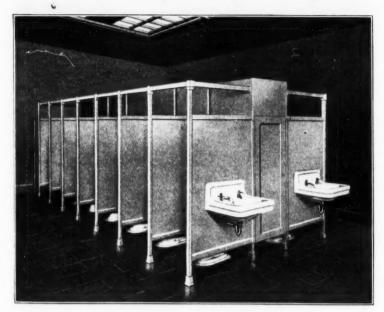
The members of the Beckley Board of Education at the time the contract was made were as follows: Dr. L. A. Martin, Pres.; Ethel Hunt Martin, Secy.; T. R. Ragland, Comm., and R. B. Yaple, Comm., who retired before the completion of the building and was succeeded by Mrs. H. E. Phipps, Comm.



AUDITORIUM AT THE WEST BEND HIGH SCHOOL, WEST BEND, WIS. (See Pages 88-84.)

Ferroplywood Partitions

Especially Designed for School Buildings



TYPICAL FERROPLYWOOD INSTALLATION Chicago Public Schools



Sound Proof, Sanitary, Non-Absorbent, Non-Cracking or Chipping, Rigid Construction,

Panels are not separate but welded and Inter-locked into posts, no butt joints or open seams.



DETAIL OF FERROPLYWOOD PANEL

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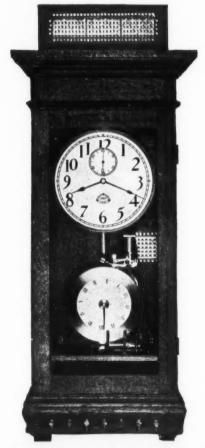
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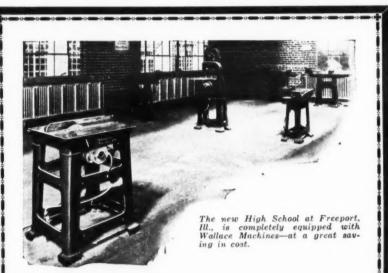


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Above is shown a very popular physics, general science and class room desk. Eighteen of these tables may be installed in the average size class room, thus conveniently taking care of thirty-six students.

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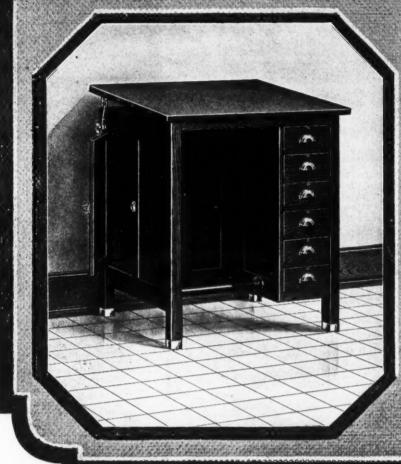
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"The Perfect Folding Chair" One Hundred Percent Safe

Clarin Chairs will carry a live load of half a ton without

Collapsing

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Marring the floor

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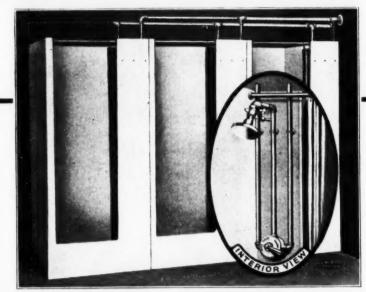
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Please send me by parcel post prepaid-sample CLARIN CHAIR, finish and seat as checked:

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We will test it for ten days and then return it or mail you \$2.75 for wood seat or \$3.50 for leatherette seat.



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FOR SCHOOL INSTALLATION A LEAK PROOF FIXTURE

Which Can Be Set in Batteries of Any Number

The walls of the stall are made of a continuous sheet of No. 10 gauge copper bearing steel which with the riser are welded to a dished bottom with waste outlet in center.

After installation is completed, the interior and exposed exterior must be finished in water proof enamel paint.

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says the American Public Health Association

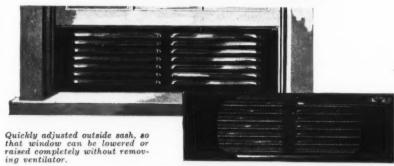
-and the growing trend toward fresh, untreated air for schoolroom ventilation helps to explain the popularity of the Wurldsbest Ventilator.

Ventilation systems now proving inadequate are easily and quickly modernized at astonishingly low -by the addition of this remarkable ventilator.

Made of heavy sheet steel, beautifully finished, in a lasting baked enamel-backed by a closely woven copper screen which excludes 80% of street dust and soot — the Wurldsbest Ventilator admits a steady stream of pure, fresh air, yet excludes drafts, rain and

Wurldsbest Ventilators are made in six adjustable sizes with a standard height of $9\frac{1}{2}$ inches. Illustrated literature will be furnished upon request.

Wurldsbest All-Metal Window Ventilator



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REQUIRE BUT A MINIMUM OF JANITOR SERVICE

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Bradley Washfountains represent a great advance in modern washroom equipment. They promote both clean-liness and sanitation, are self cleaning and require but a minimum of janitor

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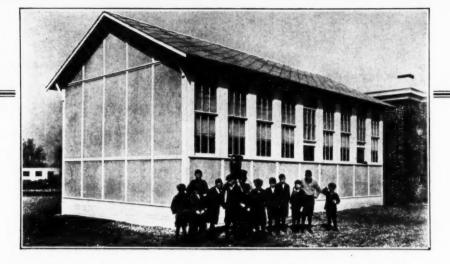
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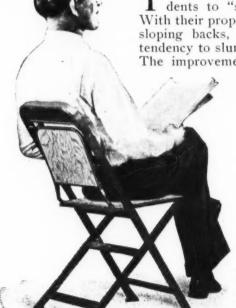
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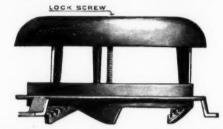
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One has only to look at the device to see that the

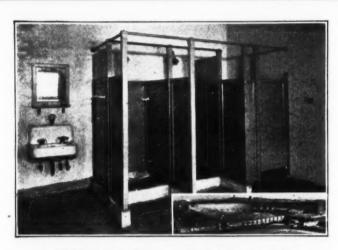


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requires less power to push or pull the air through it than it does through a mushroom which is cluttered up with regulating obstructions.

And this saving in power goes on and on so long as the system is used.

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SANITATION. Clogging and overflowing prevented; repair bills avoided. The wall type, being clear of the floor, greatly aids in cleansing the bathroom. POSITIVE, SPEEDY AC-TION. Duojet action instantly empties the bowl; a thorough flush, at a great saving in the quantity of water consumed.

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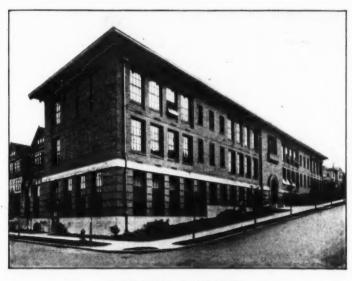
When you spend the money entrusted to your care, by your taxpayers, for Blackboards, you will be confronted by a bewildering array of claims in favor of a large variety of artificial Blackboards.

You do not want to purchase anything that needs "purchasing over" or that will pledge you to further expenditures. That is why you will want to equip your School with our

Natural Slate Blackboards

They require no upkeep, while artificial Boards must be resurfaced, repaired and replaced regularly. In comparison, the word "economy" is defined in its truest sense. It is finished with a beautiful, velvety smooth surface that does not become gray with age or use; that makes writing a pleasure and reading a relief to the eyes of the students and teachers. These are but a few of the advantages. Before you spend a dollar for Blackboards, you should read our book "How to Judge, Specify and Install Blackboards." Send for it today.

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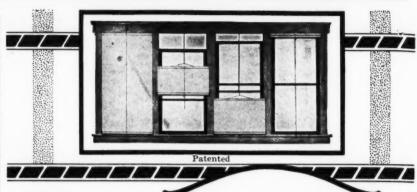
Amazing speed-yet nothing is slighted. Floors, wainscoting, window sills, chalk trays-everything cleaned thoroughly and without dust.

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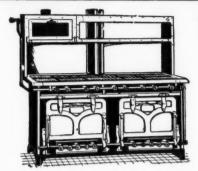
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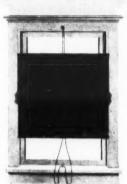
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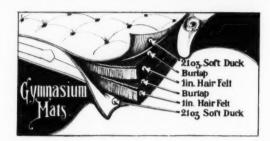
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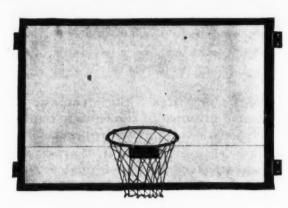
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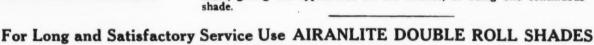
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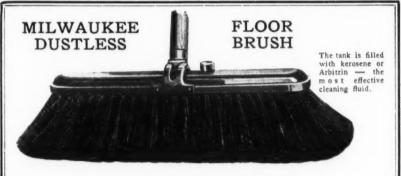
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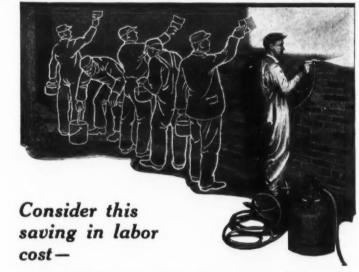
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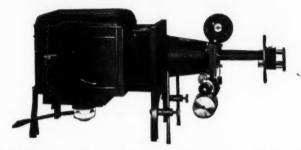
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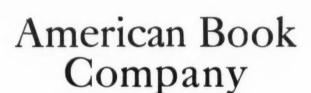
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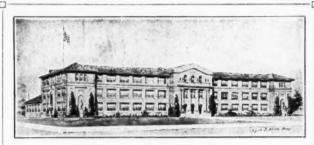
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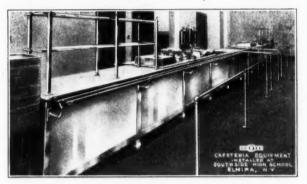


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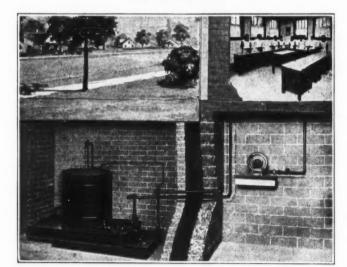


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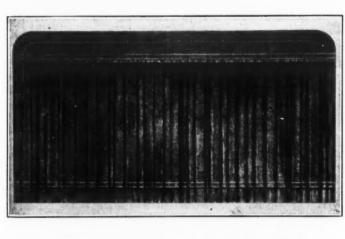


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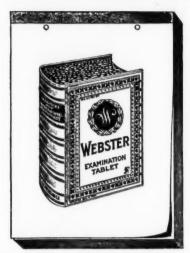
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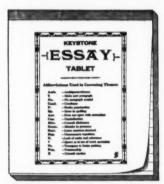
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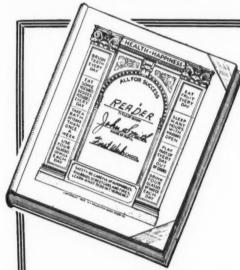
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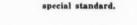
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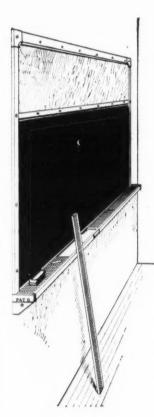


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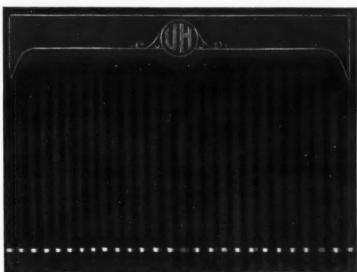
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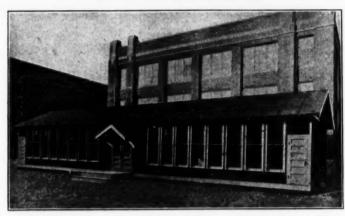
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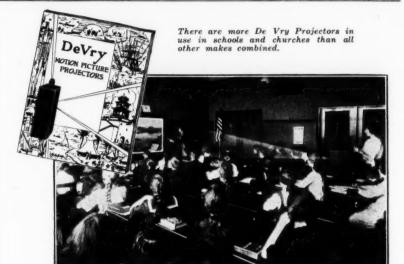
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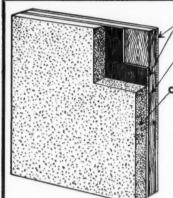
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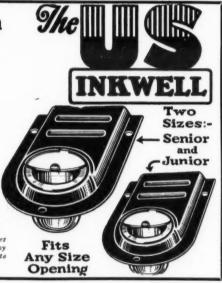
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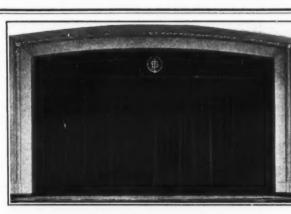
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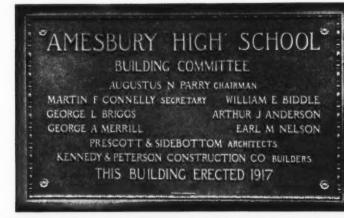
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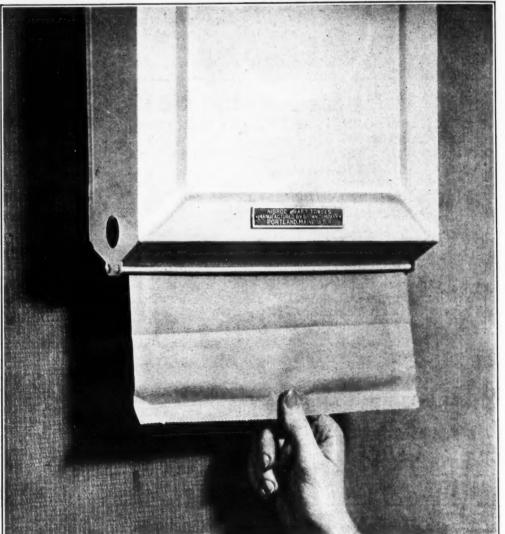
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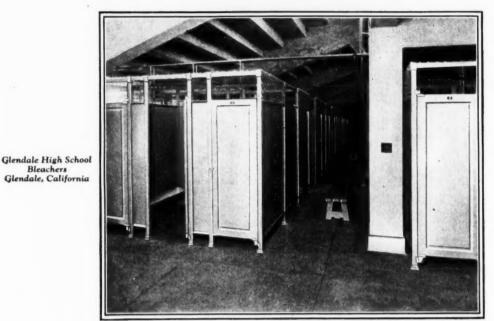
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WHY TEACHERS, ETC.

The following essays are reproduced accurately from papers submitted in an English class in a New England high school:

Webster's Oratory

During Webster's college days he was very bashful. When called upon to make a speech in a debate he would often blush even though he was among his classmates whom he saw every day, but somehow or another. Webster overcome day, but somehow or another Webster overcame those ideas of bashfulness and soon he began to speak in debates forgetting all about his bashfulness.

And Webster grew one of the ablest orators known to the English speaking people, for we are guided momently by one of his greatest works—the Dictionary.

The Story of the Ancient Marner

The Story of the Ancient Marner
In the Ancient Marner a story was told of
how a Marner shot an albertross for wanton
cruelty to the helpless bird and was made to
suffer to speak his mind to all who came in contact with him. The bird was shot while he and
the company of sailors were traveling the South
Seas. All died but him, for the saints had no
pity on his soul. So he was all alone in a boat
amongst the dead corpses, which had a terrible
affect upon his soul. affect upon his soul.

Pyramus and Thisby
The play introduced in Midsummer Nights
Dream was Pyramus and Thisby for the benefit of the married couples that were in the first part of the comedy. It was a play of Thisby meeting her lover and chased by a lion, dropping her scarf which the lion covered with blood and left upon the ground. And Pyramus, seeing the scarf, killed himself, and then Thisby had nothing to gain and died also with her lover.

What the Principal Would Do

What the Principal Would Do Miss L—, a principal in one of the St. Paul schools, tells this story concerning herself:

"A teacher in one of the first grade classes desired to do especially good work in reading and gave considerable attention to a method which I had devised. In order to enthuse the children, one day she said, 'Now suppose I were Miss L—, and you were asked to read for her. Please try to do as well for me as you would do if Miss L— were here in my place.'

"One little chap, six years old, did particu-

do if Miss I—— were here in my place.'

"One little chap, six years old, did particularly poorly, and the teacher said to him, 'I am sure the way you read would not please Miss I—— very well. Now please try again.'

"The boy tried with no more success than the first attempt, and the teacher said, 'What do you suppose Miss I—— would do if you read so poorly for her?'

"The child answered, 'She would give me hell!'"



Small Son: "Father, what is the law of gravi-

Father: "I don't know. I 'aven't got time to keep up with every silly law that Parliament

The Present Surplus of Teachers

There was a knock at the gate of Heaven. St. Peter called out, "Who's there?"

A voice responded, "It's me."

"You may come in," answered St. Peter, and another human entered upon the delights of

A few minutes later there was another rap at

e gate. "Who's there?" called St. Peter. This time a well-modulated voice replied, "It

"I'm sorry," said St. Peter, "but you will have to go down to the other place. We have filled up our quota for school teachers." We have already

Funereal

The Professor was moving, and was giving nal instruction to the furniture removers.

Taking them into his study he pointed to four g boxes filled with books.
"Be very careful of those boxes," he said.

"Mind how you handle them, for they're full of dead men's brains."

Collapse of furniture removers.

Not Such a Fool

First Undergraduate: "I've got a perfect fool of an uncle, you know. He always believes me when I tell him I need some cash to buy

"I've got an uncle Second Undergraduate: like that, too. He not only believes what I say, but buys the books for me!"

Ellen, four, had just returned home after her first morning in kindergarten.
"Well," asked her mother, "how did you like

it?"
"I didn't like it at all," she replied. woman put me on a chair and told me to wait there for the present—"

"Well," interrupted her mother, "wasn't that all right?"

"But," continued Ellen, "she never gave me any present!"—Children

any present!" -Children.

Got Its Sheepskin

"Yvonne is looking old," said Claudine.
"Eh-yah!" returned Heloise, the head waitress. "Her school-girl complexion seems to have graduated."—Collier's.

Punishment by Proxy

Little Louis arrived at school, bringing with him a letter to his teacher. It was from his mother and read:

"Dear Teacher: My son Louis is a very delicate, nervous and timid child, and if he should be naughty—a thing that has occurred more than once—I wish you would punish the boy next to him, for that will frighten him so that he'll behave himself."

Showed Up Teacher

One: "Well, I showed up the teacher before the whole class today."

The other: "Why? Wise us up."

One: "She asked me for Lincoln's Gettysburg address 'n' I had to tell her he never lived there. Oh, you should heard the class laugh

A Note to Teacher

"Dear Teacher: Kindly excuse Johnnie's absence yesterday. He fell in the mud. By doing the same you will greatly oblige his mother."

"Here, ma," requested the boy, hurrying in from school before time, "hang my jacket up behind the stove."

'Is it wet? "No, but teacher sent me home to tell you to warm my jacket for me."

Out of Form

- "Mummy, I can't go to school today."
 "Why?"
- "I don't feel well."
 "Where don't you feel well?"
 "In school."

Synthesis

Professor: Well, sir, have you any good reason why I shouldn't flunk you in Chemistry?
Student: Yes, sir—just take a snort of this gin that I made last night.—Life.

Sunday School Superintendent: What gushed forth when Moses smote the rock in the wilderness?

Little Eric (who reads the papers): Er—beer and light wines.—Life.

A Mystery

Teacher: "What do we use soap for?"
Johnny: "That's what I'd like to know!"



Trade Publications
Shades. The Oliver

Trade Publications
Steele Automatic Shades. The Oliver C.
Steele Mfg. Co., of Spiceland, Ind., has issued a new catalog describing and illustrating the Steele duck automatic shades for school use.

The shades serve a two-fold purpose of regulating sunlight and ventilation and offer the special advantages of durability, adaptability, ease of operation, and beauty of design.

These shades which are used in many school and college buildings are developed along original lines, and every improvement is the result of the firm's own efforts. They are made in various styles: Style A Basic is the simplest form of the folding styles; Style A, with extended top bar is an automatic shade, with no form of the folding styles; Style A, with extended top bar is an automatic shade, with no springs or roller, but which acts at both top and bottom; Style A with double cord support, is a form of folding shade with pulleys of metal housings; Style A stationary is similar to the A Basic and may be used to advantage on very wide windows; Style B Basic is an ordinary form but the fabric is duck; Style B is a duck fabric with a stationary roller at the top; Style B is a black fabric, with stationary roller and is suitable for darkening a room for motion pictures, science, or other rooms; Style E Basic is is suitable for darkening a room for motion pictures, science, or other rooms; Style E Basic is a roller adjustable shade, with a spring roller and pulley of sheet metal housing. Style E, with extended top bar, is stable and can be adjusted to uniform positions; Style E, with double cord and pulley, is supported by two cords and pulleys attached to the cap and the pulleys have sheet metal housings; Style F has the roller at the lower end attached to a wooden bar and is supported and operated by means of a cord and lock pulley attached to the window cap: Style lock pulley attached to the window cap; Style G has two spring rollers and a single cord support; Style G with double roller attachment has a double cord at the top and the pulleys are of brass; Style H has a spring tension roller attached to the bottom of the sash and the shade is pulled upward by a cord at the top. The firm also makes shades for arched windows, and various forms of hardware for miscellaneous

New Encyclopedia Wins First Award. The Medal of Honor, the highest award accorded any children's encyclopedia or reference book, was recently given Compton's Pictured Encyclopedia at the Philadelphia Sesqui-Centennial.

The encyclopedia is only five years old but in its first international exhibit, won in competition with children's publications which had been on the market for some time. The book is the result of the combined efforts of about eighty educators and is recognized as the best children's encyclopedia in present circulation. It is now in its eighth edition and enjoys a wide sale in England as well as the United States. A new Italian translation has just been issued.

Making Walkways Safe. The American

Making Walkways Safe. The American Abrasive Metals Company, of New York City, has issued a series of tracings showing details of various types of stairways of the safe walk type. Included is a special sheet illustrating and describing provided for the safe walk type. cype. Included is a special sheet illustrating and describing various kinds of ramps, etc., especially adapted for school use and various types of floors especially adapted for school shops, school boiler rooms, special boiler room stairways, sidewalk doors, coal hole covers, etc. The entire material is available to school board officers and school architects, who address the Company at 50 Church St., New York, N. Y.

the Company at 50 Church St., New York, N. Y.

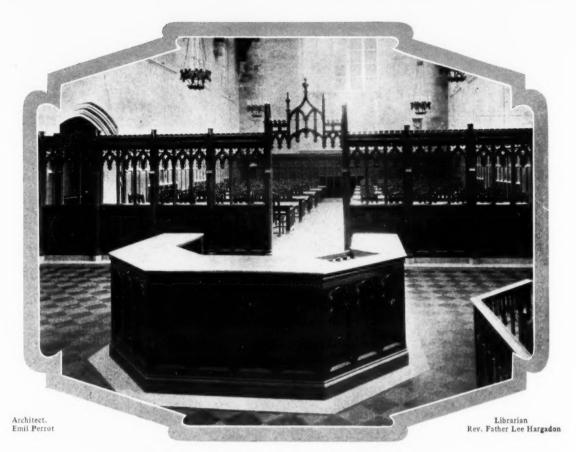
Austral Window Hardware. The Austral Window Company of New York City has issued its new Catalog No. 27, illustrating and describing hardware for Austral windows using both wood and rolled steel construction. The pamphlet gives detail drawings and specifications for hardware to be used in windows with and without screens, with weather strip, with shades attached, and with solid rolled steel window.

A large section of the catalogue.

A large section of the catalog is devoted to A large section of the catalog is devoted to illustrations of large and important school buildings equipped with Austral windows. The showing is impressive and significant of the splendid growth of American school architecture during the past five years.

Information concerning the Austral window may be obtained by writing to the Austral Window Company, 101 Park Ave., New York, N. Y.

RA



The above view of the Library in Fordham University, New York City, characterizes the untiring efforts that were put forth in making this library one of the most beautiful in the country. Library Bureau figured very prominently in providing for its beauty, by furnishing all technical library furniture (except chairs). The L. B. charging desk in the foreground, as can be seen, conforms exactly with every motif of this beautiful University Library.

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cabinet work and finish would have conformed with this thought.

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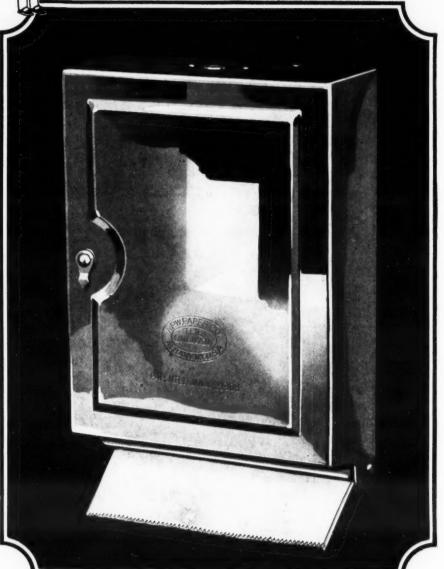
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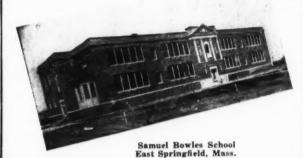
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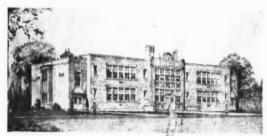
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